



Consensus and direct democracy: Conceptual and empirical linkages

ADRIAN VATTER

Institute of Political Science, University of Bern, Switzerland

Abstract. The first part of this paper draws a number of theoretical connections between various forms of direct democracy and the two types of democracy outlined by Lijphart. Plebiscites and mandatory referendums without quorums of consent are shown to correspond to majoritarian forms of democracy, whilst optional referendums and initiatives with quorums of consent are shown to share similarities with power-sharing forms. The second part of the paper offers an empirical analysis of the different use of citizen-initiated referendums (optional referendums and initiatives) in Switzerland's consensual systems (i.e., cantons) by examining to what extent the various elements of power-sharing are developed. It is argued that referendums and initiatives are used less frequently when government coalitions have greater strength and local autonomy is more developed.

Introduction

In recent years, the considerable deficiencies of representative politics have led to an impressive 'renaissance' of research on direct democracy (Budge 1996; Butler & Ranney 1994; Caciagli & Uleri 1994; Cronin 1989; Gallagher & Uleri 1996; Grote 1996; Hamon 1995; Luthardt 1994; Möckli 1994; Morel 1992; Papadopoulos 1998; Pouvoirs 1996; Rourke et al. 1992; Suksi 1993). Whilst many studies have adopted a comparative focus, this literature has tended to remain rather a-theoretical and has in many instances simply described various forms of referendums (Hug 1996: 2). Significantly, to date, there has been little success in connecting basic concepts of direct democracy, both theoretically and empirically, with other important models of democracy.

Approximately thirty years ago, comparative research led to a major distinction being proposed between consociational democracy and classical majoritarian democracy. Whilst research in the intervening period has traced interesting connections between consensus democracy and corporatism (e.g., Lijphart & Crepaz 1991; Keman & Pennings 1995; Lane & Ersson 1997), there have been few attempts to draw connections between the two basic types of consensus and direct democracy.

The most recent work (Butler & Ranney 1994: 258; Bogdanor 1994: 87; Gallagher & Uleri 1996: 17; Luthardt 1994: 174; Möckli 1994: 315) has only helped to confirm the conclusions drawn by Arend Lijphart in his pioneering study “Democracies” (1984: 31) “that the concept of direct democracy cannot be regarded as either typically majoritarian or typically consensual”. Thus, to date, it is generally agreed that the concept of direct democracy cannot be linked systematically with other models of democracy and that its different uses still remain a puzzle (Lijphart 1999: 230).

This paper will attempt to demonstrate, on both a theoretical and an empirical level, the existence of systematic connections between the types of democracy proposed by Lijphart and direct democracy. More specifically, the paper will seek to trace connections between consensus democracy¹ and selected forms of referendums and initiatives, with emphasis being placed on examining whether some types of referendums compensate for the absence of other power-sharing institutions. This point is important, in that it highlights and provides evidence for the way in which direct democracy enhances the democratic quality of a polity’s electoral and legislative institutions. The object of this study is, furthermore, to furnish suggestions as to how nations might make better use of initiatives and referendums with the aim of enhancing minority rights, something which previously has been thought to suffer under direct democracy.

In order to achieve these goals, the paper contains three key elements:

- an input-output analysis of popular rights – this serves as a model by which to establish a theoretical basis for linking different instruments of direct democracy with Lijphart’s two models of democracy;
- comparative analyses at the subnational level of Swiss states (cantons) – this level is preferred over international comparisons as it minimises the problem of a one-sided distribution of referendums among a limited number of countries as may be seen in some other previous studies;
- an empirical analysis of the use of referendums and initiatives in the 26 Swiss cantons. This approach permits the focus of attention to rest on a more detailed examination of the differing uses of such instruments, since the cantons frequently display significant variations in both the degree of consensus and the degree of direct democracy they variously employ.

The paper is organized in the following way. The following section will, in addition to outlining an institutional typology of different forms of referendums and initiatives, trace the theoretical connections between instruments of direct democracy and the most important elements of the theory of power-sharing. Starting from Lijphart’s features of consociational democracy, the paper will then go on to propose a number of hypotheses concerning the different use of popular rights. This done, a number of plausible control hypotheses will

be considered. The subsequent section will focus on the empirical testing of these hypotheses. The conclusion will consist of a final analysis summarizing both the theoretical arguments and the empirical findings.

Theorising connections between consensus democracy and elements of direct democracy

It should be noted at the outset that there can be no general answer to the question of possible linkages between the two basic dimensions of democracy: namely the majority-consensus model² and the representative-direct democratic one. This is because the numerous instruments of direct democracy are too manifold and too contrary with regard to their functions and effects. A convincing answer can only be given if first we attempt to classify in theoretical terms the direct democratic procedures, subsequently connecting them to Lijphart's two basic principles of the theory of democracy (Jung 1996: 625). Although a number of typologies of direct democracy have recently been proposed (e.g., Gallagher & Uleri 1996; Hamon 1995; Linder 1994; Butler & Ranney 1994; Möckli 1994), none of them differs substantially from Smith's basic classification. In the light of this fact, it is reasonable, given our purposes here, to use Smith's (1976) first criterion, although in a slightly more specific form: i.e., the question of who has the right to launch a referendum. From this, two basic types of referendums may be derived (cf. also Jung 1996: 634):

- Type 1: The government or parliamentary majority are entitled to initiate a referendum;
- Type 2: A minority³ (part of the voting population) is entitled to initiate a referendum.

While plebiscites⁴ and compulsory (or mandatory) referendums⁵ may be assigned to the first type, optional (or 'facultative') referendums⁶ and initiatives correspond to Type 2. Given this clear distinction, it is now possible in theoretical terms at least to establish an initial connection with Lijphart's two conceptions of democracy: since the ruling majority has an exclusive right to initiate plebiscites and mandatory referendums, these can be thought of as having the typical characteristics of majoritarian democracy. In contrast to this, we have the initiatives and optional referendums: these can be initiated from the bottom by a small minority of voters either to overturn decisions made by the parliamentary majority (optional referendum) or to refer to voters' own propositions in the form of laws or constitutional reforms (popular initiatives), thus avoiding the parliamentary and government majority.

In order to achieve a more accurate typology of the numerous forms of direct democracy, however, the input perspective needs to be extended to take account of outputs (Scharpf 1970; Schmidt 1995). So far here, the potential influence of minorities has only been considered in terms of the initial stages of the political decision-making process. It is therefore necessary to continue and consider the rights of minorities during the actual decision phase. In concrete terms, the extended input-output approach raises the question of whether the consent of specific quorums is required for the acceptance of a referendum proposal. With respect to this, Jung (1996: 633) emphasizes that there is a substantial difference between decisions requiring qualified majorities and those which can proceed on the basis of a simple majority.

Following on from here, we can usefully develop an analytical classification of popular rights on the majority-consensus dimension by examining the numerous direct democratic institutions in Switzerland. Of special significance with regard to such a classification is the aforementioned distinction, which provides a clear distinction between compulsory referendums in Switzerland at federal and cantonal levels: whilst for compulsory referendums in the states (cantons) a simple majority is sufficient, constitutional reform at the federal level requires the majority of both the people and the cantons. As a result of this so-called “double majority requirement” for mandatory referendums, a citizen’s vote in the smallest canton, Appenzell Inner Rhodes, carries approximately forty times more weight than a citizen’s vote in the canton of Zurich (Germann 1991; Vatter & Sager 1996). In effect, therefore, the federal protection of minorities means that small cantons “can organize a veto to block democratic majorities” (Linder 1994: 159).

In summary, the plebiscite and the mandatory referendum are decided by a simple majority, whereas minorities are excluded from their initiation and belong to the ‘losers’ in the absolute sense, after decisions have been made. To these two forms of direct democracy, at least, Barry’s (1975: 485) conclusion may be applied: namely, “that the institution of collective decision-making by a simple majority of the popular vote is in itself the antithesis of ‘amicable agreement’”. With regard to these two variants of popular rights, an admonition going back to James Madison, one of the founders of the American constitution, seems justified: namely, that direct democratic procedures not only correspond to a majority principle, but represent no less than the embodiment of systematic tyranny by the majority (Sartori 1992: 172).

Optional referendums and, in particular, initiatives⁷ with quorums of consent (extraordinary majorities), meanwhile, are located at the opposite pole. These are effective minority instruments which enable parts of the population to enforce popular votes which can go against the will of governmental and parliamentary majorities. In the case of initiatives, moreover, minorities are

Table 1. A typology of referendums and initiatives with special emphasis on Swiss institutions

	Initiated by a simple government majority	Initiated by a minority
Simple popular majority as decision rule	<ul style="list-style-type: none"> – Plebiscite – Compulsory referendum (cantonal) 	<ul style="list-style-type: none"> – Optional referendum (federal and cantonal) – Initiative (cantonal)
Minority veto as decision rule	<ul style="list-style-type: none"> – Compulsory referendum with quorum of consent (federal) 	<ul style="list-style-type: none"> – Initiative with quorum of consent (federal)

also allowed to define the issue at stake. As a means of realizing the indivisible sovereignty of citizens, these instruments come closest to the basic democratic principles of Jean-Jacques Rousseau’s doctrine of popular sovereignty which, today, is held most fervently by adherents to the theory of participatory democracy (e.g., Barber 1984). As applied in Switzerland with the veto provision of the cantons at the national level, this popular right allows the limitation of the power of the majority in a number of ways.

Thus, by considering majority-minority dimensions in terms of both the initiation and the decision phase of referendum proposals, we are able to trace connections between the most important forms of popular rights to Lijphart’s two models of democracy (see Table 1). Whereas plebiscites and mandatory referendums without quorums of consent belong to the majoritarian type of democracy, optional referendums and initiatives with quorums of consent display distinct power-sharing characteristics. Initiatives and optional referendums for which a simple majority rule applies, meanwhile, are intermediate forms: at the crucial stage of initiation, these instruments display typical power-sharing characteristics, whilst final decisions are made according to a majority principle. In Figure 1, the different types of referendums and initiatives (strong majoritarian, strong power-sharing, mixed) are classified according to Lijphart’s majority-consensus dimension.⁸

Due to the predominant position of the representative democracy model among developed industrialized nations (Hamon 1995: 11), the importance attached to popular rights in Switzerland is unusual and, accordingly, their structural functions are somewhat unique (Kriesi 1995; Linder 1994; Neidhart 1970). Whilst this does mean that the scope for comparative analyses at the national level⁹ is rather limited and that the *ceteris paribus* assumption is

Popular rights with majoritarian characteristics

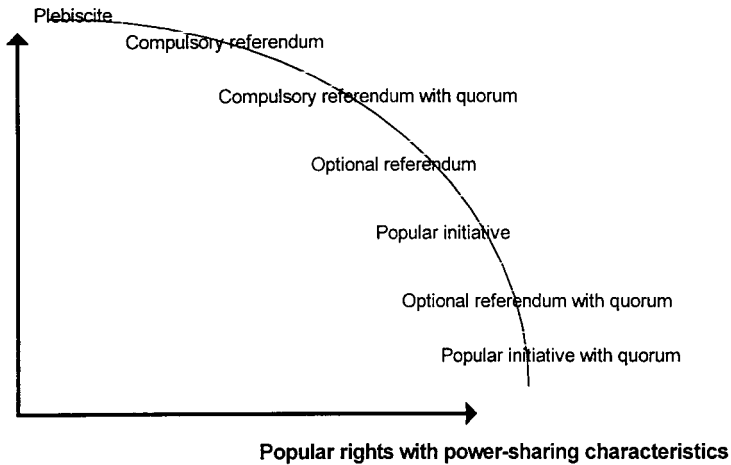


Figure 1. A classification of referendums and initiatives following Lijphart.

hard to maintain (Hug 1996), one promising way to proceed is by making comparisons between states, i.e., at the subnational level.

Significantly, making comparisons of direct democracy at the state level means that some of the major methodological problems associated with comparative political research can be avoided or, at least, reduced (Luthardt 1994: 18). In contrast to a comparison of nation states in which specific political forms, regulations, and patterns as well as particular cultural and institutional contexts must be taken into account, the systematic comparison of two dozen cantonal political systems is potentially less complex. On the one hand, such an approach offers a broad empirical field of direct democracy, while on the other hand, notwithstanding important elements of heterogeneity in terms of their political structure and process, all the units of analysis form part of a common frame with identical basic dimensions.

Hypotheses concerning the use of direct democracy

Hypotheses of power-sharing

Since the frequency of mandatory (and largely undisputed) referendums depends primarily on the current constitutional situation and on the activity of legislators, they are not really suitable for empirical analysis.¹⁰ Given this, the present analysis will attempt to explain the different use of optional referendums and initiatives in the Swiss cantons. As a starting point, the question of whether there are any systematic connections between different degrees

of power-sharing and the use of direct democracy from the bottom will be considered.

To do this, the use of referendums and initiatives must first be connected theoretically with the defining features of consociational democracy¹¹ (Lijphart 1977; 1996). Firstly, as is generally known, the minority veto is (besides grand coalitions, local autonomy/federalism, and proportionality) regarded as the fourth basic definitional criterion of a consociational democracy. According to Lijphart (1996: 261) this can be described as follows: “The minority veto in power-sharing democracies usually consists of merely an informal understanding that minorities can effectively protect their autonomy by blocking any attempts to eliminate or reduce it”.¹² A more precise description can be found in some of Lijphart’s work (1984: 190): “The simplest and most common procedure embodying the minority veto is the need for an extraordinary majority – usually two-thirds – in parliament”.

In contrast to Lijphart, the minority veto is not defined here as a (formal or informal) blocking instrument for minorities on which they can rely in parliamentary negotiations if their autonomy is seriously threatened. Rather, in the light of the preceding discussion, optional referendums and initiatives which allow political minorities to initiate referendums are to be regarded as specific minority veto elements in a power-sharing democracy.¹³

Secondly, it is assumed that the four definitional elements of consociational democracy jointly influence each other and are, in particular, causally dependent on one another. In contrast to the current, generally-held thesis that direct and proportional democracy work in the same direction and, furthermore, are mutually reinforcing, it is argued here that there is an inverse relationship between the effective use of direct democracy and the degree of development of the various power-sharing elements: The more majoritarian characteristics a democratic system has, and the less well-protected minorities are, the more frequently instruments of direct democracy (optional referendum and initiatives) are used and, as such, they function as conflict regulating compensation mechanisms. It may fairly be said that institutional structures and well-established regulatory controls such as, for example, the electoral system and its degree of proportionality, the right to self-determination for social groups, and the size of government coalitions, are relatively stable and vary only in the medium- to longer-term political picture,¹⁴ while optional referendums and initiatives offer immediate protection for minorities and thus may function as central power-sharing devices for the consolidation of a political system.

Proceeding from this hypothesis of a compensatory power-sharing role for direct democracy in consensual systems, it is now necessary to deduce specific hypotheses for the case of Swiss cantons to be considered here. Gen-

erally speaking, connections between the size of the government coalition, the degree of local autonomy, and the disproportionality effect of the electoral system, on the one hand, and the frequency of the use of referendums, on the other, should be evident.

As a first hypothesis, a direct connection between the size of the government coalition and direct democracy can be postulated: The more inclusive a government is in terms of party political and voter composition, the less likely it is that there will be broad-based opposition and that the interests of certain minorities will be neglected. Citizen participation in systems with multiparty coalitions gaining broad support (grand coalitions) is, therefore, likely to be below average, whereas winning coalitions with minimum support are likely to rely on a greater use of “popular democracy”.

A second hypothesis presumes a connection between the disproportionality effects of an electoral system and direct democracy. While proportional representation allows a quick response to social change and new political movements and, by so doing, achieves a broad representation of interests (i.e., an adequate reproduction of the distribution of power in parliament), plurality and majority formulas have a different effect. As is already known, the majority-plurality system favors majority parties, while medium and smaller-sized parties lacking local strongholds are disadvantaged (Lijphart 1994; Nohlen 1990). In general, it has to be assumed that in systems with a majoritarian electoral system (or high electoral thresholds), direct democracy is used more often than in systems with purely proportional elections due to the below-average representation of smaller groups in the legislature.

A third, and final, hypothesis draws a connection between the local autonomy¹⁵ of social groups and direct democracy. In federal systems in which the different parts of the population have a strong degree of local autonomy, referendums and initiatives can be expected to be less often used since decisions taken by the central authority are less significant to local actors whilst most of the important decisions are made locally, with the people’s participation, in light of the specific circumstances. Alternatively, in unitary systems with little local autonomy political decisions are made without detailed knowledge of local circumstances and without broader participation of local interests and, as a result, they correspond less well to the specific preferences of the people concerned (Elazar 1997). Accordingly, it can be expected that in unitary systems, direct democracy in the sense of a minority veto is of great importance, whereas in systems with a strong local autonomy the popular rights of minorities are only of minor interest.

The three hypotheses may be summarized as follows:

- *The more inclusive a government coalition, the more proportional the electoral system, and the more developed the degree of (local) cultural autonomy, the less referendums and initiatives will be used.*

Control hypotheses concerning the use of direct democracy

The previous section has focused exclusively on a number of postulated linkages between certain elements of the theory of power-sharing and the use of direct democracy. It seems plausible, however, that there are other factors influencing the use of the two popular rights in question. In this section, the most important alternative hypotheses will be presented systematically.

Institutional hypotheses. The more developed the instruments of direct democracy and the fewer the formal-institutional provisions for the submission of initiatives and referendums, the more frequently the two popular rights will be used (Bogdanor 1994: 63; Hug 1996; Kriesi 1995; Linder 1994: 140; Magleby 1994: 225).

Government hypotheses. The smaller the number of government parties and the total volume (number) of cabinet seats, the more frequently the two direct democratic instruments will be used in their function as minority rights (Felder 1993).

Party system hypotheses. The more competitive, fragmented, and polarized a party system¹⁶ and the higher the electoral volatility in parliamentary elections, the more frequently the two citizen-initiated referendums will be used (Ladner & Brändle 1999: 294; Price 1975). Luthardt (1994: 95), in particular, suggests that the greater the size of green parties with their “basic-democratic” roots, the more frequently referendum and initiatives are used. Conversely, the extent of support for right-wing parties also seems to provide a plausible explanation for the use of referendums, as one of the principal characteristics of right-wing populists is their claim that the common man ought to be consulted.

Socio-structural and socio-cultural hypotheses. The more developed, the more urban and the more densely populated a society, the more frequently oppositional popular rights will be used due to the multiplicity of the actors involved and the heterogeneous character of any conflicts arising (Hamon 1995: 68; Nef 1980; Suksi 1993; Vatter & Nabholz 1995). In contrast, greater homogeneity exists in small and rural regions. The use of optional referendums and initiatives will also differ in contrasting socio-cultural contexts (for example, on the basis of language and religion). In particular, in the present

case, it should be noted that the German-speaking parts of Switzerland have a long tradition of citizen participation, while in the French-speaking cantons there have, historically, been much greater tendencies towards representative democracy (Kriesi 1995: 87; Kriesi & Wisler 1996: 24; Möckli 1994: 23; Price 1975; Vatter et al. 1997).

Economic hypotheses. The lower the level of economic development (economic growth, unemployment, tax burden), the more frequently oppositional popular rights will be used due to popular dissatisfaction with government economic policy (Matsusaka 1992; Schneider 1985).

Empirical evidence

The dependent variable is the number of optional referendums and initiatives occurring between 1981 and 1996. Altogether, more than 500 referendum elections (optional referendums and initiatives) were held. With the exception of the four *Landsgemeinde* cantons, all 22 cantons in which secret ballots apply are considered. Each of the three main hypotheses of power-sharing is operationalized with two indicators. On the one hand, measures similar to those used by Lijphart (1984) are applied, whilst on the other, additional measures are included so as to take into account criticisms of Lijphart's indicators (e.g., Schmidt 1995: 242). It should, however, be noted that both of these measures can only be partially realized due to the level at which the present analysis proceeds. Tables 2 and 3 show the results of bivariate analyses of the statistical correlations between the use of popular rights and the different predictor variables. Tables 4 and 5 show the independent influence of the predictor variables from multiple regression analyses. The findings of the bivariate analyses may be summarized as follows:

- Four out of six indicators of power-sharing are strongly associated with the use of the two popular rights: both measures of the strength of the government coalition and of the degree of local autonomy seem to confirm two of the initial hypotheses: the more a canton corresponds to the power-sharing model *par excellence* with a broadly supported government coalition and decentralised political structures, the less often direct democratic instruments are used. Simultaneously, however, one of the theses of power-sharing must be rejected: there is no relationship between the disproportionality effect of the electoral system and the accumulated use of direct democracy;
- Similarly, there are no strong correlations between the degree of development of direct democratic instruments, the institutional provisions for the submission of initiatives and referendums, and the dependent

Table 2. Correlations between number of referendums (optional referendums and initiatives) and variables of power-sharing (1981–1996)

Independent variables	Cantons (N = 22)
<i>Strength of government coalition</i>	
– Electoral strength of government parties in %	–0.57**
– Oversized coalition since 1945 (dummy: no = 0, yes = 1)	–0.56**
<i>Disproportionality of the electoral system</i>	
– Electoral system (dummy: proportional = 0, majority = 1)	–0.12
– Empirical electoral threshold in % (see Taagepera 1989)	–0.28
<i>Local autonomy</i>	
– Cantonal tax revenues in % of total cantonal and local tax revenues (see Lijphart 1984)	0.51**
– Population figure of average commune (log)	0.64**

- variable, nor are there any significant differences between cantons with compulsory and optional legislative referendums.¹⁸ Likewise, the level of economic development, as indicated by the tax burden and changes in national income and unemployment, do not show any close associations;
- Conversely, political indicators turn out to be particularly relevant with both government and party variables showing strong correlations with the active use of popular rights. Especially strongly associated with the use of direct democracy are the size of green parties, the level of electoral volatility and the size of the government; whereas the strength of right-wing parties may be seen to correspond to a lesser degree;
 - Lastly, socio-structural system characteristics are also statistically associated with the frequent use of optional referendums and initiatives; the more developed the economic structures, and the more urban and densely populated a canton, the more frequently direct democratic instruments are used in order to enforce political claims.

As a next step, the independent explanatory contribution of each variable is estimated using an OLS regression model. Due to the small sample size, the choice of variables is very selective and must, of necessity, be limited to a few steps.¹⁹ Table 4 contains the findings of the first OLS regression model in which the two most strongly associated measures of power-sharing are included. The fit of this “power-sharing model” ($R^2 = 0.68$; adj. $R^2 = 0.64$) together with the high t-values for both variables further confirms the significance of two of the theses of power-sharing. Indeed, on the basis of this model, the electoral strength of the government parties (GOVPART) and the “average

Table 3. Correlations between number of referendums and other variables

Independent variables	Cantons (N = 22)
<i>Institutional determinants</i>	
– Number of popular rights (Lutz & Strohmann 1998)	–0.02
– Mandatory legislative referendum (dummy: yes = 0, no = 1)	0.39
– Number of signatures required to submit optional referendums as % of voters and per month (Kriesi 1995: 86)	–0.03
– Number of signatures in % for initiatives (Kriesi 1995: 86)	–0.09
<i>Government determinants</i>	
– Number of government parties	0.64**
– Total volume (number) of cabinet seats	0.47*
<i>Party system determinants</i>	
– Fragmentation of party system (Rae-Index)	0.56**
– Polarization of party system (cf. Powell 1982)	0.64**
– Electoral strength of green parties in %	0.80**
– Electoral strength of right-wing parties in %	0.41*
– Electoral volatility (Index according to Pedersen 1979)	0.67**
<i>Socio-cultural determinants</i>	
– Percentage German speakers	0.12
– Percentage Catholics	–0.39
<i>Socio-structural determinants</i>	
– Employed persons in primary (agriculture) sector in %	–0.63**
– Employed persons in secondary sector in %	–0.31
– Employed persons in tertiary sector in %	0.45*
– Population figure (log)	0.41*
– Percentage of inhabitants in urban areas (Bassand 1988)	0.64*
<i>Economic determinants</i>	
– Change in national income in %	–0.19
– Unemployment rate in %	0.19
– Change in unemployment rate in % (1986/1994)	0.08
– Tax burden (CH-index)	–0.22

The independent variables are average values for the period 1981–1995/96;¹⁷ unless stated otherwise, these are derived from several yearbooks in the *Année politique suisse* series and annual publications by *Bundesamt für Statistik* and *Eidgenössische Finanzverwaltung*; all coefficients are Pearson's correlation coefficients except for the dummy variables for which eta coefficients are given.

* Correlation coefficient with $p < 0.05$.

** Correlation coefficient with $p < 0.01$.

Table 4. Results for the first multiple regression model (OLS method, regression coefficients; N = 22). Dependent variable: Number of referendums (optional referendums and initiatives) per canton (log) 1981–1996

Independent variables	Regression coefficients
Constant	1.405
GOVPART	–0.018*
	–0.491
	(–3.392)
POPCOM (log)	0.386**
	0.508
	(3.509)
R ²	0.68
Adjusted R ²	0.64

* Significant at 0.05 (two-tailed).

** Significant at 0.01 (two-tailed).

The estimated regression coefficients are listed first, followed by the standardized regression coefficients. The respective t-values are in parentheses. Tolerance: 0.89.

population size of a commune” (POPCOM), indicators of the strength of government coalition and decentralisation/local autonomy respectively, explain almost two thirds of the variation in the use of direct democracy in the 22 Swiss cantons considered. Both predictor variables are highly significant and the signs are as predicted. The remaining thesis of power-sharing must, however, be rejected since the variables indicating the disproportionality effects of the electoral system do not provide any additional explanatory power and are not significant. Also insignificant are models of institutional ($R^2 = 0.06$), socio-cultural ($R^2 = 0.09$), and economic ($R^2 = 0.11$) characteristics, with the contribution of each of these being extremely low and no variable showing significant values.

The parameters offering an independent and significant explanation in further regression analyses (see Table 5) are the total number of cabinet seats to be distributed (CABINET SEATS), the percentage of people employed in the agricultural sector (PRIMSECT), and the strength of green parties (GREENPART). The first indicator (CABINET SEATS) supports, at least in part, the argument that consensual patterns affect the use of referendums since it demonstrates the chance of small minority parties winning seats in the government. In these extended analyses (models 2–4), the additional variables just outlined lead to an increase in explanatory power of a further 10 to 20 percent. The significance of the two power-sharing variables is substantially confirmed by the two best fitting models in Table 5. From more than 30

Table 5. Results for the extended multiple regression models (OLS method, regression coefficients; N = 22). Dependent variable: Number of referendums (optional referendums and initiatives) per canton (log) 1981–1996

Independent Variables	Model 2 Regression coefficients	Model 3 Regression coefficients	Model 4 Regression coefficients
Constant	1.846	0.854	1.012
GOVPART	0.016**	−0.009	−0.013*
	−0.426 (−3.110)	−0.235 (−1.448)	−0.294 (2.162)
POPCOM (log)	0.041	0.259*	
	0.053 (0.249)	0.341 (2.385)	
CABINET SEATS	0.135*		0.125**
	0.425 (2.459)		0.393 (4.238)
PRIMSECT	−0.037*		−0.030**
	−0.436		−0.346
GREENPART		0.043*	0.043**
		0.462 (2.526)	0.464 (3.566)
R ²	0.77	0.76	0.87
Adjusted R ²	0.71	0.72	0.84

variables, these two are part of the group of three or four which are the most significant.

Conclusions

The starting point for the present article was Lijphart's famous, often-quoted, and to date unchallenged conclusion that "direct democracy can therefore not be regarded as either typically majoritarian or typically consensual. In fact it is a foreign element in both majoritarian and consensus democracy" (Lijphart 1984: 31).

Having fully taken into account the variety of functions and effects of the numerous direct democratic instruments, my conclusion differs in several aspects from that of Lijphart: Direct democracy is to be regarded neither as a fundamentally foreign element in majoritarian and consensus democracies

(Lijphart 1984), nor as ‘the antithesis of ‘amicable agreement’ ” and power-sharing (Barry 1975: 485). The crucial factor is rather, to my mind, the *specific form* of direct democracy. Due to the exclusive initiation competence of the government majority and the validity of the simple majority rule, plebiscites and mandatory referendums may be brought into correspondence with the basic function of traditional Westminster democracies. Initiatives and optional referendums with quorums of consent, on the other hand, are the typical minority rights of consensus democracies.

The differentiated interplay of consensus and direct democracy can thereby be analyzed most fruitfully on the basis of the unique experiences at federal and cantonal level in Switzerland. To conclude, two separate but consecutive complexes of effects may be given special emphasis.

First, and on a general level, the structure-building and/or structure-transforming effect of optional referendums and initiatives is of fundamental importance: With their extended veto potentials and the ensuing unpredictability for the central actors, the introduction of these direct democratic instruments in Switzerland and their intensive use by non-represented groups has created institutional pressures towards consensualism. As a result, oppositional forces apt to launch referendums have been continuously integrated which has finally led to the establishment of differentiated power-sharing structures. In short: The co-optation strategies adopted over the years by the political elite in order to minimize the risks of direct democracy have transformed the referendum democracy into a democracy of negotiation and consensus. For the case of Switzerland, the structure-building function of the optional referendum has been deduced most convincingly by Neidhart (1970). Until today, this fundamental finding is generally regarded as one of the most important, although not the only explanation for the formation of consensual decision structures at the different state levels in Switzerland (e.g., Germann 1975; Kriesi 1995; Kobach 1993; Lehner 1984; Linder 1994, 1998; Papadopoulos 1994, 1997; Trechsel & Sciarini 1998).

Second, despite the little attention it has received, it is important to consider the compensatory power-sharing functions of optional referendums and initiatives which take effect in established consensual systems: The comparative analysis of direct democracy in the Swiss states shows that after the transformation from majority to consensus democracy has taken place, optional referendums and initiatives function as substitute power-sharing instruments for insufficiently integrated minorities. The several instruments of power-sharing are systematically related, with direct democracy as an immediately available instrument of conflict regulation being of special importance. In principle, the following rule applies: The less “perfectly” a consensual system is organized, the sooner optional referendums and initiat-

ives will be used by underrepresented minorities as alternative instruments of power distribution. Empirically, an analysis of the cantons shows the following connection: The more inclusive the government coalition and the greater the local autonomy of the population, the less oppositional popular rights are used. However, in cantons where the parliament is elected by the majority formula and high electoral thresholds apply, popular rights are not used more often than in cantons with purely proportional representation and low electoral thresholds. This finding, which seems surprising at first sight, becomes quite plausible given further consideration. Moreover, it is also possible to ally such a result with the findings of comparative democracy research. According to Linder (1994), influence by means of referendums is maximized in consensual systems with direct democracy while, simultaneously, the importance of elections is minimized due to the impossibility of a transition of power. The low relevance of parliament elections in the semi-direct consensual democracies of the cantons helps to explain why the proportionality effect of the electoral system – a basic element of power-sharing in representative democracies – does not influence the use of optional referendums and initiatives. In representative consensus democracies, the size of the government coalition, the degree of local autonomy, the proportionality of the electoral system with regard to parliament elections, and a (parliamentary) minority veto are the four basic power-sharing devices (Lijphart 1977, 1996 and 1997b). In semi-direct consensus democracies, optional referendums and initiatives take over the function of the minority veto. As a result of the comparatively weak position of the parliament, the specific characteristics of the electoral system do not matter.

In general, the obvious connections between socio-structural indicators of modernization and the accumulated use of oppositional popular rights, as well as similar findings in other studies (Suksi 1993: 166; Trechsel & Kriesi 1996), help to elucidate the future potential for conflict regulation inherent in direct democracy – especially for highly developed societies. Furthermore, these unique experiences with direct democracy in Switzerland may be seen to serve indirectly as a model for institutional reform and institutional building in emerging democracies. In rural, homogeneous, and small areas with a relatively low degree of conflict, optional referendums and initiatives are primarily of symbolic and hardly of any practical relevance. In urban, culturally segmented systems with well-established economic structures, however, these popular rights serve as important formal means of influence for underrepresented minorities. Moreover, they fulfill a number of crucial social purposes in contemporary everyday life which is characterized by a high degree of complexity and contradictoriness. The heterogeneity and polyvalence of political groups and subcultures in densely populated areas, with their accumulation

of social problems and risks, a high potential of conflict, and simultaneously, the increasing “distance” and anonymity between rulers and people, makes direct democracy from the bottom appear to be a particularly appropriate instrument for the articulation and gratification of various social needs. The experiences in Switzerland, at least, indicate that in a period where representative and institutional politics can at times be largely deficient, popular rights as responsive political forms offer concrete possibilities of channelling, integrating and restraining the political protests of various social groups (Kriesi & Wisler 1996). This observation is especially applicable to developed civic societies in the process of changing, and in emerging democracies. In principle, these popular rights serve as effective and sensitive instruments for conflict regulation and thus contribute substantially to the general improvement of democratic functioning.

Acknowledgements

I am indebted to Wolf Linder, Jürg Steiner, Klaus Armingeon, Arend Lijphart, Markus Freitag, Fritz Sager, Craig Duncan and the anonymous referees for their advice and criticism. An earlier version of this paper was presented at the annual convention of the Swiss Political Science Association, 1998.

Notes

1. I have employed the broader term “consensus democracy” rather than (the older and more specific) term “consociational democracy” for two reasons: Firstly, my theoretical model contains references mainly to Arend Lijphart’s later work (1984). Secondly, for many authors (Barry 1974, 1975; Bohn 1981; Lehner 1984; Church 1989) Switzerland – which is central to the empirical part of this paper – hardly fulfills the structural preconditions, which Lijphart’s (1968, 1977) early theory of consociationalism requires to be present in order for a polity to be a case of consociational democracy: namely, the segmentation or pillarisation of subcultural groups. According to this perspective, cultural segmentation or pillarisation cannot explain the accommodative decision-making of Swiss elites. (However for a more relaxed definition of consociationalism, see Steiner 1998: 2; for a detailed discussion of the debate on whether Switzerland can be considered as a consociational country, see Kriesi 1990, 1995 and Sciarini & Hug 1999).
2. Ideally, the two types of democracy according to Lijphart (1984, 1999) are diametrically opposed with regard to the basic aspect of power distribution. Majoritarian democracy, with a one-party cabinet, two-party system, plurality system of elections, centralized government, and additional elements centers on the concentration of power as a basic principle. Consensus democracy, on the other hand, stresses power-sharing due to multi-party government (grand coalitions), separation of powers, PR, balanced bicameralism, territorial federalism and other instruments. It was only the advent of the theory of

“power-sharing” – formulated independently, but more or less simultaneously by Lehmbruch (1967, 1969, 1975) and Lijphart (1968, 1977, 1984) – with its development of a prototype of consociational democracy, that made it become possible to describe a large number of smaller European states in a theoretically convincing and empirically productive manner (cf. Schmidt 1995). Other early studies in the field of consociational democracy include the works by Daalder (1974), McRae (1974), and Steiner (1974).

3. In the following “minority” refers to those groups which are numerically and politically opposed to the majority. These do not necessarily have to be groups which differ from the majority of the population in terms of culture, language, or religion.
4. The use of the term “plebiscite” in the literature varies. The following explanations are based on the definition by Suksi (1993: 10): “(Plebiscite) (...) may be an ‘ad hoc referendum’ for which there exist no permanent provisions in the constitution or in ordinary legislation (...)”.
5. Compulsory (or mandatory) referendums are those acts which have to be referred to the voters by the majority in government and parliament because it is required by the constitution (cf. Armingeon & Freitag 1997: 21).
6. See also Gallagher & Uleri (1996: 7): “We call a vote optional when it is promoted at the request of an agent whom the constitution or the law so entitles”.
7. The Swiss initiative is sometimes called ‘indirect’ to distinguish it from the ‘direct’ initiative of the US states, which is submitted to the popular vote without the intervention of the legislature (Magleby 1984: 35).
8. As mentioned before, an unequivocal classification of the intermediate categories requires a weighting of the initiation and decision competence. In Figure 1, the agenda-setting right has been given more weight than the right to block. Reverse weighting leads to minor shifts of the intermediate forms; the basic idea of the explanations above, however, remains essentially the same.
9. For a simple empirical cross-national comparison (plebiscites and mandatory referendums in majoritarian democracies and optional referendums and initiative in consensus democracies), see Vatter (1997).
10. The same conclusion is drawn by Ladner & Brändle (1999: 289f): “The mandatory (obligatory) referendum can be left aside, as it is mainly due to institutional provisions and has little to do with the intermediate actors involved”. Lijphart (1984: 206) takes an identical view: “To explain political patterns in terms of constitutional prescriptions is largely tautological”.
11. Contextually I have found it necessary, in this instance, to revert to the use of the term consociational rather than consensus democracy, owing to my direct reference to the four devices of consociational democracy as defined by Lijphart (1977, 1996).
12. cf. Lijphart (1977: 37): “The minority veto is synonymous with John C. Calhoun’s concurrent majority, which also had the protection of minority interests as its principal goal: it invests each segment with the power of protecting itself, and places the rights and safety of each where only they can be securely placed, under its own guardianship”.
13. It is not the aim of the following explanations to analyze the different effect of optional referendums (preserving effect) and initiatives (progressive effect). For these questions refer to Kriesi 1995, Kriesi & Wisler 1996, Linder 1994.
14. Linder (1994: 167f) argues similarly with his remark that within consensus democracy two dimensions exist: “the more ‘structural’ and durable dimension of federalism, and the more ‘procedural’ and variable dimension of consociationalism”.

15. Cf. Lijphart (1997a: 251) himself makes two principal criticisms of his earlier publication *Democracies* (1984), one of which is not having paid closer attention to the older theorists of federalism. This observation taken into account, I use the notions of decentralisation or local autonomy in preference to that of federalism, having operationalised the variable (degree of fiscal autonomy) in a manner analogous to that employed by Lijphart (1984: 175–179).
16. It is fair to say that, in making comparisons on the country level between the extent of broad government coalitions and the fragmentation of the party systems, we find strong correlations and similarities (Lijphart 1984: 123–124). This is, however, not the case on the subnational level in the cantons of Switzerland. You can observe almost ‘perfect’ grand coalition governments in cantons with very few parties (especially in rural areas) and vice versa. In this sense the fragmentation hypothesis is an alternative hypothesis to hypothesis 1.
17. Average values are sufficient, as most of the independent variables do not vary substantially over the time period in question.
18. In the US-States the frequency of referendums appears to be related to the institutional restrictions and to the cost of holding a referendum (Hug 1996: 18; Magleby 1994: 225).
19. The previous regression diagnostic showed that the basic assumptions on which the consistency of the OLS estimator is based are fulfilled after the dependent variable had been transformed. The histogram of standardized residuals (normal-probability plot) indicated a positively skewed distribution of the y-values (nonnormal error), for which reason the dependent variable was logarithmized. With this transformation it was not only possible to fulfill the normal sampling distribution assumption, but also to minimize the problem of outliers which is common with small samples. Conversely, the plots of regression residuals confirm that there is no heteroscedasticity, but a constant error variance. Likewise, multicollinearity does not pose a problem. The tolerance values in Table 4 are >0.8 , in Table 5 >0.5 . The partial residual plots, finally, indicate that the assumption of linearity is a useful approximation.

References

- Armingeon, K. & Freitag, M. (1997). *Deutschland Österreich Schweiz: Die politischen Systeme im Vergleich. Ein sozialwissenschaftliches Datenhandbuch*. Opladen: Leske + Budrich.
- Barber, B.R. (1984). *Strong democracy: Participatory politics for a new age*. Los Angeles: University of California Press.
- Barry, B. (1974). The consociational model and its dangers, *European Journal of Political Research* 3(4): 393–412.
- Barry, B. (1975). Review article: Political accommodation and consociational democracy, *British Journal of Political Science* 5(4): 477–505.
- Bassand, M. (1988). *Les enjeux de l'urbanisation*. Bern and Paris: Lang.
- Bogdanor, V. (1994). Western Europe. In: D. Butler & A. Ranney (eds), *The referendums around the world: The growing use of direct democracy*. Basingstoke: MacMillan Press.
- Bohn, D.E. (1981). Consociationalism and accommodation in Switzerland, *Journal of Politics* 43: 1236–1240.
- Budge, I. (1996). *The new challenge of direct democracy*. Oxford: Polity Press.

- Butler, D. & Ranney, A. (1994). *The referendums around the world: The growing use of direct democracy*. Basingstoke: MacMillan Press.
- Caciagli, M. & Uleri, P.V. (1994). *Democrazie e referendum*, Roma and Bari: Laterza.
- Church, C. (1989). Behind the consociational screen: politics in contemporary Switzerland, *West European Politics* 12: 35–54.
- Cronin, T.E. (1989). *Direct democracy: The politics of initiative, referendum, and recall*. Cambridge and London: Harvard University Press.
- Daalder, H. (1974). The consociational democracy theme, *World Politics* 26: 604–621.
- Elazar, D.J. (1997). *Exploring Federalism*. Lexington: Raytheon.
- Felder, U. (1993). *Wahl aller Kantonsregierungen unter besonderer Berücksichtigung des Wahlsystems*. Freiburg: Universitätsverlag.
- Gallagher, M. & Uleri, P.V. (1996). *The referendum experience in Europe*. London and New York: MacMillan Press.
- Germann, R.E. (1975). *Politische Innovation und Verfassungsreform*. Bern: Haupt.
- Germann, R.E. (1991). Die Europatauglichkeit der direktdemokratischen Institutionen der Schweiz, *Schweizerisches Jahrbuch für Politische Wissenschaft* 31: 257–269.
- Grote, R. (1996). Direkte Demokratie in den Staaten der Europäischen Union, *Staatswissenschaften und Staatspraxis* 3: 317–363.
- Hamon, F. (1995). *Le référendum. Etude comparative*. Paris: Economica.
- Hug, S. (1996). Referendums around the world: Why do they occur? *Paper presented at the Annual Meeting of the American Political Science Association*.
- Jung, S. (1996). Lijpharts Demokratietypen und die direkte Demokratie, *Zeitschrift für Politikwissenschaft* 6(3): 623–647.
- Keman, H. & Pennings, P. (1995). Managing political and social conflict in democracies: Do consensus or corporatism matter?, *British Journal of Political Science* 25: 271–281.
- Kobach, K.W. (1993). *The referendum: Direct democracy in Switzerland*. Aldershot: Dartmouth.
- Kriesi, H. (1990). Federalism and pillarization: The Netherlands and Switzerland compared, *Acta Politica* 25: 433–450.
- Kriesi, H. (1995). *Le système politique suisse*. Paris: Economica.
- Kriesi, H. & Wisler, D. (1996). Social movements and direct democracy, *European Journal of Political Research* 30: 19–40.
- Ladner, A. & Brändle, M. (1999). Does direct democracy matter for political parties? An empirical test in the Swiss cantons. *Party Politics* 5(3): 283–302.
- Lane, J.-E. & Ersson, S. (1997). The institutions of Konkordanz and corporatism: How closely are they connected? *Swiss Political Science Review* 3(1): 21–42.
- Lehmbruch, G. (1967). *Proporzdemokratie. Politisches System und politische Kultur in der Schweiz und in Österreich*. Tübingen: Mohr.
- Lehmbruch, G. (1969). Konkordanzdemokratie im internationalen Vergleich, *Politische Vierteljahresschrift, Sonderheft* 1: 139–163.
- Lehmbruch, G. (1975). Consociational democracy in the international system, *European Journal of Political Research* 3: 377–391.
- Lehner, F. (1984). Consociational democracy in Switzerland: political-economic explanation and some empirical evidence, *European Journal of Political Research* 12: 25–45.
- Lijphart, A. (1968). *The politics of accommodation: Pluralism and democracy in the Netherlands*. Berkeley and Los Angeles: University of California Press.
- Lijphart, A. (1977). *Democracy in plural societies*. New Haven, CT: Yale University Press.
- Lijphart, A. (1984). *Democracies. Patterns of majoritarian and consensus government in twenty-one countries*. New Haven, CT: Yale University Press.

- Lijphart, A. (1994). *Electoral systems and party systems: A study of twenty-seven democracies 1945–1990*. Oxford and New York: University Press.
- Lijphart, A. (1996). The puzzle of Indian democracy: a consociational interpretation, *American Political Science Review* 90(2): 258–268.
- Lijphart, A. (1997a). About peripheries, centres and other autobiographical reflections, pp. 241–253, in: H. Daalder (ed.), *Comparative European politics. The story of a profession*. London: Redwood Books.
- Lijphart, A. (1997b). Reflections: Dimensions of democracy, *European Journal of Political Research* 31(1–2): 195–204.
- Lijphart, A. & Crepaz, M.M.L. (1991). Corporatism and consensus democracy in 18 countries: Conceptual and empirical linkages, *British Journal of Political Science* 21: 235–256.
- Lijphart, A. (1999). *Patterns of democracy. Government forms and performance in thirty-six countries*. New Haven, CT: Yale University Press.
- Linder, W. (1994). *Swiss democracy. Possible solutions to conflict in multicultural societies*. London and New York: MacMillan Press.
- Linder, W. (1999). *Schweizerische Demokratie. Institutionen – Prozesse – Perspektiven*. Bern und Stuttgart: Haupt.
- Luthardt, W. (1994). *Direkte Demokratie. Ein Vergleich in Westeuropa*. Baden-Baden: Nomos.
- Lutz, G. & Strohmann, D. (1998). *Wahl- und Abstimmungsrecht in den Kantonen*. Bern: Haupt.
- Magleby, D.B. (1984). *Direct legislation. Voting on ballot propositions in the United States*. Baltimore: John Hopkins University Press.
- Magleby, D.B. (1994). Direct legislation in the American States, pp. 218–263, in: D. Butler & A. Ranney (eds), *The referendums around the world. The growing use of direct democracy*. Basingstoke: MacMillan Press.
- Matsusaka, J.G. (1992). Economics of direct legislation, *Quarterly Journal of Economics* 107(3): 541–571.
- McRae, K.D. (1974). *Consociational democracy: Political accommodation in segmented societies*. Toronto: McClelland and Stewart.
- Möckli, S. (1994). *Direkte Demokratie. Ein internationaler Vergleich*. Bern: Haupt.
- Morel, L. (1992). Le référendum: état des recherches, *Revue française de science politique* 42(5): 134–164.
- Nef, R. (1980). Struktur, Kultur und Abstimmungsverhalten. Zur interregionalen Variation von politischen Präferenzen in der Schweiz 1950–1977, *Schweizerische Zeitschrift für Soziologie* 10: 155–190.
- Neidhart, L. (1970). *Plebizit und pluralitäre Demokratie. Eine Analyse der Funktion des schweizerischen Gesetzesreferendums*. Bern: Lang.
- Nohlen, D. (1990). *Wahlrecht und Parteiensystem: über die politischen Auswirkungen von Wahlsystemen*. Opladen: Leske + Budrich.
- Papadopoulos, Y. (1994). *Elites politiques et peuple en Suisse: analyse des votations fédérales 1970–1987*. Lausanne: Editions Réalités Sociales.
- Papadopoulos, Y. (1997). *Les processus de décision fédéraux en Suisse*. Paris: L'Harmattan.
- Papadopoulos, Y. (1998). *Démocratie directe*. Paris: Economica.
- Pedersen, M. (1979). The dynamics of European party systems: Changing patterns of electoral volatility, *European Journal of Political Research* 7: 1–26.
- Pouvoirs (1996). Le référendum, *Revue française d'études constitutionnelles et politiques* 77.
- Powell, B. (1982). *Contemporary democracies*. Cambridge: Harvard University Press.
- Price, C.M. (1975). The initiative: A comparative state analysis and a reassessment of a western phenomenon, *Western Political Quarterly* 28: 243–262.

- Rourke, J.T., Hiskes, R.P. & Zirakzadeh, C.E. (1992). *Direct democracy and international politics. Deciding international issues through referendums*. Boulder and London: Lynne Rienner Publishers.
- Sartori, G. (1992). *Demokratiethorie*. Darmstadt: Wissenschaftliche Buchgesellschaft.
- Scharpf, F.W. (1970). *Demokratiethorie zwischen Utopie und Anpassung*. Konstanz: Universitätsverlag.
- Sciarini, P. & Hug, S. (1999). The odd fellow: Parties and consociationalism in Switzerland, pp. 134–162, in: K.R. Luther & K. Deschouwer (eds), *Party elites in divided societies*. London and New York: Routledge.
- Schmidt, M.G. (1995). *Demokratiethorien. Eine Einführung*. Opladen: Leske + Budrich.
- Schneider, F. (1985). *Der Einfluss von Interessengruppen auf die Wirtschaftspolitik. Eine empirische Untersuchung für die Schweiz*. Bern and Stuttgart: Haupt.
- Smith, G. (1976). The functional properties of the referendum, *European Journal of Political Research* 4(1): 1–25.
- Steiner, J. (1974). *Amicable agreement versus majority rule: Conflict resolution in Switzerland*. Chapel Hill: UNC Press.
- Steiner, J. (1998). The consociational theory and Switzerland – revisited thirty years later. Paper presented at the conference on the fate of consociationalism. Harvard University.
- Suksi, M. (1993). *Bringing in the people. A comparison of constitutional forms and practices of the referendum*. Dordrecht: Martinus Nijhoff Publishers.
- Taagepera, R. (1989). Empirical thresholds of representation, *Electoral Studies* 8: 105–116.
- Trechsel, A.H. & Kriesi, H. (1996). Switzerland: The referendum and initiative as a centrepiece of the political system, pp. 185–207, in: M. Gallagher & P.V. Uleri (eds), *The referendum experience in Europe*. London and New York: MacMillan Press.
- Trechsel, A.H. & Sciarini, P. (1998). Direct democracy in Switzerland: Do elites matter?, *European Journal of Political Research* 33(1): 99–24.
- Vatter, A. & Nabholz, R. (1995). Der Stimmbürger als Homo Economicus? Ein empirischer Theorientest am Beispiel kantonaler Kreditvorlagen aus der Schweiz, *Politische Vierteljahresschrift* 36(3): 484–501.
- Vatter, A. & Sager, F. (1996). Föderalismusreform am Beispiel des Ständemehrs, *Swiss Political Science Review* 2(2): 165–200.
- Vatter, A., Linder, W. & Farago, P. (1997). Determinanten politischer Kultur am Beispiel des Schwyzer Stimmverhaltens, *Swiss Political Science Review* 3(1): 1–33.
- Vatter, A. (1997). Die Wechselbeziehungen von Konkordanz- und Direktdemokratie, *Politische Vierteljahresschrift* 38(4): 743–770.

Address for correspondence: Dr Adrian Vatter, Institute of Political Science, University of Bern, Unitobler - Lerchenweg 36, CH-3000 Bern 9, Switzerland
 Phone: +41-31-631 32 85; Fax: +41-31-631 85 90; E-mail: adrian.vatter@ipw.unibe.ch