Satisfaction with Democracy: When Government *by* the People Brings Electoral Winners and Losers Together*

Lucas Leemann† and Isabelle Stadelmann-Steffen‡

August 14, 2020

Paper presented at the ECPR General Conference, Virtual Event

August 24-28, 2020

Abstract

The last decade has witnessed the rise of populist parties and a number of actors who question liberal democracy. Many accounts explain this rise with dissatisfied citizens. This paper asks whether and how institutions that allow citizens to participate in policy making affect democratic satisfaction both across different representative contexts and between electoral winners and losers. To answer these questions, we first develop a measure of sub-national direct democracy and then combine it with extensive survey data to investigate how direct democracy affects citizens' evaluations of their democratic system. We show that direct democracy does not generally make people more satisfied with democracy; rather, it closes the "satisfaction gap" between the winners and the losers of an election. In contrast to previous research, we demonstrate that this mechanism holds across different representative systems.

*We are grateful to Nadine Golinelli and Lisa Marti for impeccable research assistance and to Kathrin Ackermann, Michael Strebel, Adrian Vatter, and Fabio Wasserfallen for very valuable comments. We thank Julian Bernauer for sharing his data. Earlier versions were presented at the annual meetings of the Swiss Political Science Association in 2018 and 2019 and the German Political Science Association in 2018.

†University of Zürich, leemann@ipz.uzh.ch, URL: www.lucasleemann.ch.

‡University of Bern, isabelle.stadelmann@ipw.unibe.ch, URL: www.ipw.unibe.ch/Stadelmann.

1 Introduction

Recent decades have witnessed an increased interest in democratic satisfaction. Liberal democracy seemed to be the inevitable outcome of historic processes, including modernization (Lipset, 1959; Fukuyama, 1989). Nevertheless, the past 10 years and the concomitant crystallization of political forces opposed to liberal democracy highlight that the latter is only one possible outcome. This awareness raises the questions how citizens evaluate the political system they live in and how satisfied they are with it (e.g. Norris, 2011; Liberini, Redoano, and Proto, 2017; Esaiasson, Dahlberg, and Kokkonen, 2020). Such questions are even more necessary in light of populist parties, which have been considered to be "an expression of dissatisfaction with existing modes of organized elite-mass political intermediation and the desire to abandon the intermediaries that stand between citizens and rulers" (Kitschelt, 2002, p. 179). This paper focuses on institutions that allow for greater citizen involvement and asks whether such institutions may affect individual satisfaction with democracy.

Direct democratic institutions deserve special attention because they appear to bridge the gap between (perhaps) naive ideals of individual engagement with the *res publica* and a representative system. This is not a new phenomenon; rather, it can be traced back to the early days of representative democracy. After the French Revolution the *assémble nationale* had to draft a constitution. One faction, the *Girondist* whom Condorcet belonged to, proposed a draft that introduced a number of direct democratic elements. It was ultimately rejected (Kölz, 2004). Ever since, direct democracy has been proposed as a remedy to representative democracy's perceived deficiencies. Whether direct democracy succeeds in overcoming the latter or produces any negative externalities are questions for further empirical research.

This interest is reflected both in public discourse[1] and in academic research(Freitag and Stadelmann-Steffen, 2010; Frey and Stutzer, 2000; Frey, 1994; Frey and Stutzer, 2010; Gerber, 1999; Heidbreder et al., 2019; Leemann and Wasserfallen, 2016; Matsusaka, 2005, 2010; Stadelmann-Steffen and Vatter, 2012; Stutzer and Frey, 2003; Frey and Stutzer, 2010; Smith

[1] Nathan Heller,Äôs *Politics without Politicians* in *The New Yorker* (19.2.2020, https://www.newyorker.com/news/the-future-of-democracy/politics-without-politicians, Torbiörn Kjell,Äôs *Politics without Politicians* in *Svenska Dagsblatt* (25.2.2017, https://www.svd.se/schweiz-modell-bor-ses-som-ett-foredome/om/debatt), or Heribert Prantl,Äôs *Alle Macht dem Parlament - und den Bürgern!* in *Süddeutsche Zeitung* (28.1.2018, http://www.sueddeutsche.de/politik/prantls-blick-alle-macht-dem-parlament-und-den-buergern-1.3844015).

and Tolbert, 2004; Webb, Scarrow, and Poguntke, 2019). Hug (2009) explicitly called for the study of how direct democratic institutions interact with elements of the representative system. At times when democracy is not the only game in town anymore, it is even more relevant to better understand whether direct democratic institutions affect (dis)satisfaction with the representative political system and any effects depend on the structure of the representative system.

Our paper departs from these questions and proceeds to delve into the association between direct democracy and individual satisfaction using a comparative perspective across 4 countries and 101 sub-national units. We ask: *Is direct democracy related to higher levels of democratic satisfaction and how does it interact with representative democracy?* We specifically focus on how the winners and losers of elections in different representative contexts react to direct-democratic institutions. These settings not only vary with respect to their formal electoral procedures (i.e., majoritarian vs. proportional elections), but also, more broadly, in the way they address and integrate political minorities (Lijphart, 1999; Bernauer and Vatter, 2012)

We are not the first ones to study direct democracy's impact on democratic satisfaction. Most prominently, Frey and Stutzer (Frey and Stutzer, 2010, 2000; Stutzer and Frey, 2003) and their "happiness hypothesis" have triggered a series of analyses on this relationship. This literature presents us with mixed empirical results (Altman, 2002; Dorn et al., 2007; Bernauer and Vatter, 2012; Radcliff and Shufeldt, 2016; Stadelmann-Steffen and Vatter, 2012). In the present study, we go beyond past research in at least three respects.

First, based on a short review of the existing literature, we develop novel arguments about the interaction between electoral and direct democracy. They focus on the gap in democratic satisfaction between electoral winners and losers. While other authors have emphasized either consensual forms of direct democracy (Bernauer and Vatter, 2012) or the role direct democracy plays in majoritarian electoral systems (Radcliff and Shufeldt, 2016), we argue and empirically show that direct democracy narrows the winner-loser gap regardless of the characteristics of the electoral system.

Second, we propose a sub-national comparative research design that includes all sub-national units from the U.S., Switzerland, Germany, and Austria. It enables us to study and compare both majoritarian and consensual sub-national democracies, which further exhibit

varying degrees of direct democracy. Indeed, previous research has so far focused exclusively on the subnational units of countries with extensively developed DD (i.e., the Swiss cantons or the US states) which all follow either a consensual or a majoritarian system. While studies have compared different representative models of democracy, they have incorporated little variation in direct democracy (Bernauer and Vatter, 2012). We therefore lack a truly comparative view and this omission has consequences for our scope and opportunity to better understand direct democratic institutions.[2] Our sub-national cross-country approach enables us to take Hug's claim that we should try to better understand how direct democratic institutions interact with other elements of representative democracy seriously (Hug, 2009).

Finally, we build on work by Altman (2017) to propose and provide a measure of direct democratic institutions for 101 *sub-national units* across four countries. We refer to direct democracy as a set of institutions that allow citizens to challenge a government's decision. It is an institutionalized process by which citizens collect (enough) signatures and force a ballot vote, or where the constitution demands a mandatory ballot vote. This ballot decision can take the form of an initiative, when citizens propose a new law, or of an optional or mandatory referendum. This bundle of institutions differs from instances where the government "allows" people to vote on an issue (Altman, 2017). Depending on how easy the access to these direct democratic instruments is and how frequently they are used, we conceptualize direct democracy not only as a binary feature (i.e., whether it is available or not) but also as a matter of degree. The four countries under investigation – USA, Switzerland, Germany, and Austria – are the four cases where direct democracy not only exists at the sub-national level but also varies across units in a relevant way.

The remainder of this paper is organized as follows. We first present previous research on the relationships between direct democracy and individual satisfaction with democracy and representative systems and satisfaction, and formulate a number of empirical expectations. We then explain our measurement approach, which builds on Altman's (2017) country-level index, and show how it compares to existing measures. In the fourth section, we analyze the association between direct democracy and satisfaction with democracy in 101 sub-national units across four countries. In particular, we show that the difference in satisfaction with

[2]See Geissel, Krämling, and Paulus (2019) for a rare example applied to the heterogeneous effects of direct democracy on inequality.

democracy between electoral winners and electoral losers is significantly different when direct democratic institutions are available. In line with our theoretical argument, we show that extensive direct democratic rights have the potential to fill the satisfaction gap which emerges between the winners and the losers of elections in representative systems.

2 Theoretical Background

Before presenting our argument, we first discuss two strands of literature: research on how the nature of the representative system (e.g. majoritarian vs consensus) affects citizens' satisfaction with democracy and research on how direct democratic institutions can have an impact on satisfaction with democracy. We then bring these two discussions together and formulate our argument. The core claim we make builds on Anderson and Guillory's (1997) finding that the representative system creates a satisfaction gap between winners and losers of elections. We argue that direct democratic institutions can narrow this gap. Extensive direct democratic institutions can close it in a way that winners and losers are equally satisfied with democracy.

2.1 Representative Democracy and Democratic Satisfaction

How does the nature of the representative system affect citizens' satisfaction with democracy? Anderson and Guillory (1997) show that consensus and majoritarian democracies treat electoral winners (those who have voted for a political party entering the government) and electoral losers (those who have voted for a party that is not part of the government) differently, which influences citizens' satisfaction with democracy. They find that the gap between electoral winners' and losers' satisfaction with democracy is higher in majoritarian systems than in consensual democracies (see also Anderson et al., 2005; Anderson and Guillory, 1997; Bernauer and Vatter, 2012; Martini and Quaranta, 2019; Singh, Karakoç, and Blais, 2012). In a nutshell, in majoritarian systems, winners tend to be more satisfied while losers are less satisfied.

Anderson and Guillory (1997) argue that this wider gap results from the nature of representative democracy. In particular, institutional settings that provide "electoral losers with significant rights to participate in governmental decision making" reduce the gap between

winners and losers (Anderson and Guillory, 1997, p. 68). Their argument focuses on typical elements of consensual democracies, such as the presence of two chambers, multi-party governments, federalism, and decentralization (as characterized by Lijphart (1999)), but they also refer to referendums.

2.2 Direct Democracy and Democratic Satisfaction

In a series of influential empirical studies on the Swiss cantons, Frey and Stutzer (2000, 2010) document direct democracy's positive effect on people's life satisfaction. The authors find that people report significantly higher levels of satisfaction if they live in a Swiss canton with easier access to and more frequent use of direct democratic institutions. While these findings hold in the US context (Radcliff and Shufeldt, 2016), some of them have since been questioned (Dorn et al., 2007; Stadelmann-Steffen and Vatter, 2012).

The argument that direct democracy affects individual satisfaction seems to be quite theoretically compelling, especially if it is applied to satisfaction with democracy - the concept at the heart of our paper. First, policy outcomes resulting from direct democratic consultations can be expected to come closer to the median voter's preferences, therefore leading to more satisfied citizens. Second, direct democracy should produce positive procedural effects by creating a perception of procedural fairness.

Several studies corroborate these underlying dynamics, especially those behind the policy outcomes of direct democracy. In her famous research on the median-voter effect of referendums, Gerber (1996*a*, 1999) documents that death penalty legislation and abortion rights indeed come closer to the median voters' preferences in states with popular initiatives. Similarly, Matsusaka (2004) claims that "Direct Democracy Works" with respect to outcomes, voter competence, and the principal-agent problem. More recently and relevant to the Swiss context, Leemann and Wasserfallen (2016) show that direct democratic institutions are conducive to policy congruence, even when no vote takes place. The constant threat of a referendum constrains legislators to a certain extent. Finally, Olken (2010) shows how participation in decision making affects satisfaction.

However, previous research also offers arguments that question the generally positive relationship between direct democracy and democratic satisfaction. One concern emphasizes that

the mechanisms and, thus, potentially, the outcomes of direct democracy are contingent on how these participatory instruments are embedded in the political system (Heidbreder et al., 2019). Therefore, these effects may not materialize just under any circumstances. Rather, we need to consider that direct democratic institutions interact with other elements of representative democracy (Hug, 2009). Most important, direct democracy may affect satisfaction in majoritarian and consensual political systems differently.

A comparison between the US and the Swiss subnational units illustrates this intuition. Switzerland is a typical example of a consensus democracy (Linder, 2010; Lijphart, 1999); direct democracy is a crucial and integral part of it. Direct democracy has forced and still forces political actors to share power, and has played a pivotal role in the emergence of a multiparty government and a consensual political culture. Even though both the US states and Switzerland can be considered "the pioneers of modern direct democracy" (Gross and Kaufmann, 2003, p. 3), the role of the latter is quite different in the US. US direct democratic rights have not led to powersharing; rather, direct democracy offers a way to "get around" the legislature (Heidbreder et al., 2019, p. 375). By building a parallel, independent way of policy-making, direct democracy may exacerbate the problems of representation that are inherent to majoritarian democracies, and, as a result, negatively affect satisfaction with democracy (Aarts and Thomasson, 2008).[3] Unlike its Swiss counterpart, US direct democracy rarely involves broader input and discussion on a salient problem; rather, it produces outputs that are even more conflicting than those originating from the traditional policy-making arena (Möckli, 1994, p. 111, 352).[4] It is thus questionable whether direct democracy increases democratic satisfaction in political systems like the US states.

[3]Of course, the popular initiative in Switzerland can also be considered an instrument of getting "around" the legislature by proposing new laws or articles that the parliament has failed to introduce. However, the research on Swiss direct democracy broadly accepts that the popular initiative clearly goes beyond "getting around the legislature" and has at least three more functions, namely 1) to enforce consensual behavior by the legislature and the government, 2) to bring new issues to the political agenda, and 3) to mobilize the initiator and potential supporters (Linder, 2010).

[4]Public opinion data tend to corroborate these differences. In a comparative study, Bowler and Donovan (2004) find that Switzerland has the highest support for direct democracy among 16 established democracies. 84 percent of Swiss citizens agree, or even strongly agree with the statement in the question "Thinking about politics in Switzerland, to what extent do you agree or disagree: referendums are a good way to decide important political questions?" (Bowler and Donovan, 2004, 352). By contrast, only 64 percent of US citizens agreed or strongly agreed with it. According to Smith, Tolbert, and Keller (2010, 513), even fewer citizens are in favor of a national referendum. See also Anderson and Goodyear-Grant (2010) for more insights on preferences towards direct democratic institutions.

2.3 Direct and Representative Institutions and How They Affect Satisfaction with Democracy

We are not the first to look at the intersection of representative and direct democracy with a focus on how it affects citizens' satisfaction. Bernauer and Vatter (2012) claim that when it is combined with large governments, direct democracy is another consensual aspect that decreases losers' deprivation and limits winners' satisfaction. They consider these two elements – consensual decision making (or power sharing) and direct democracy – forms of horizontal power sharing. We take a different point of view here. Their analysis of 24 countries is limited to the specific situation where direct democracy is embedded in a context of consensual democracy. Obviously, this is the result of empirical limitations: being the only country with substantial direct democracy at the national level, Switzerland is an outlier on the cabinets-direct-democracy dimension. The authors acknowledge that only in Switzerland can one observe a level of consensual direct democracy able to equalize electoral winners' and losers' satisfaction with democracy (ibid. 455). This fact naturally raises some doubts about whether the aforementioned effect is driven by the Swiss case. Accordingly, the study does not provide a theoretical argument about how direct democracy could interact with a more majoritarian model of democracy.

Finally, Radcliff and Shufeldt (2016)'s study suggests that direct democracy may affect winner-loser differences in majoritarian contexts. Citizens of the U.S. states psychologically or emotionally benefit from knowing that important matters will be discussed and decided on in an inclusive fashion rather than in the "confusing, uncertain, and potentially corrupt 'smoke-filled rooms' of the legislative process" (Radcliff and Shufeldt, 2016, p. 1419). This argument implies that it may be particularly important to include electoral losers into the benefits of direct democracy in a majoritarian setting. By extending the analysis beyond one country, we are able to explore this relationship and show findings pointing in the opposite direction.

2.4 Hypotheses

Building on these strands of literature, we formulate several expectations with respect to the impact direct democracy has on individual democratic satisfaction in different representative contexts.

First, we follow earlier research in assuming that direct democracy has the potential to generally increase satisfaction with democracy. Previous research has substantial empirical limits related to the lack of variation in representative contexts and direct democracy alike. We believe that the inconclusive findings discussed above may result from these empirical limitations, rather than from the validity of the proposed theoretical mechanisms. Therefore, our first expectation is that *more extensive direct democracy is generally related to higher levels of democratic satisfaction.*

Nevertheless, we also agree that when we study the effects of direct democracy we should take into account these institutions' embeddedness in various representative contexts (Hug, 2009) and consider that the effect of direct democracy may be contingent on the representative context. We therefore test a second hypothesis: *The relationship between direct democracy and satisfaction with democracy varies across representative contexts.*

Furthermore, previous research on the winner-loser gap puts forth several different arguments about direct democracy's capacity to reduce the disparity in democratic satisfaction between the winners and losers of the electoral system. While Bernauer and Vatter (2012) emphasize the equalizing effect of *consensual* direct democracy (i.e., direct democracy embedded in a consensual representative setting), which obviously predominates in Switzerland, Radcliff and Shufeldt (2016) imply that direct democracy may especially accommodate losers in *majoritarian* systems because direct democracy prevents winners from taking absolutely all. The two studies do not investigate the independent effect of direct democracy but are theoretically and empirically grounded in the specific countries they focus on. Nevertheless, based on them, we assume that the equalizing effect of direct democracy could be rather generic and affect winner-loser differences in democratic systems across different representative contexts: *Direct democracy reduces the gap in satisfaction with democracy between electoral winners and losers.*

3 A Comparative Measure of Sub-National Direct Democracy

The previous sections have discussed the limits cross-national analyses, especially those related to the lack of variance in direct democracy. The alternative strategy of using country-specific sub-national analyses is also problematic: Analyzing all Swiss cantons or all US states entails

working with little variance in representative democracy. All Swiss cantons more or less follow the ideal of a consensual democracy, with proportional electoral systems, oversized executives, etc. (Vatter, 2002). American states are all majoritarian political systems. Hence, the most promising way of approaching the interaction between direct democracy and representative democracy is to analyze *sub-national entities (which either have or do not have direct democracy provisions) across different countries*. This strategy enables us to analyze variance in both direct democracy and representative democracy.

Nevertheless, measuring direct democracy (at the sub-national level) is not intuitive (see e.g. Matsusaka, 2000; Stutzer, 1999; Leemann, 2019). Very different measurement approaches have been used in the US and the European (mostly Swiss) context, for example. To date, there is no comparable comparative data or indicator for sub-national direct democracy. In an effort to fill this gap, we propose a measure of direct democracy for sub-national units that allows us to ascertain the dimensions of such institutions across various country contexts. This index directly builds on Altman (2017) and his *Direct Democracy Practice Potential*, but has been adapted for our purposes. While we relegate the technical discussion of the index to the appendix (see subsection A1.3), we describe the concept and how it departs from previous contributions in this section. We then discuss how the index is constructed. In a final step, we show how sub-national entities in the US, Switzerland, Germany, and Austria compare to one another in the extent of direct democracy they offer their citizenry.

3.1 Direct Democracy - A Concept

We conceptualize direct democracy as a set of institutions that allow citizens to challenge a government's decision. It is an institutionalized process by which citizens collect (enough) signatures and force a ballot vote, or where the constitution demands a mandatory ballot vote. The outcome of the vote is binding. We choose this narrow definition on purpose, since using a broader concept would run the risk of conflating fundamentally different aspects. We seek to capture the non-representative avenue by which citizens can change or affect policy decisions (see e.g. Cheneval and el-Wakil, 2018). This deviates from Altman (2011)'s definition of direct democracy, for example, which also covers plebiscites, and, more generally, ballot votes initiated by the government. In fact, it comes closer to what Altman labels *bottom-up*

direct democracy, except we also include mandatory referendums. Doing so is important if we want to account for the indirect way direct democratic institutions can affect policy outcomes. Policymakers aware of or expecting a referendum vote down the road will anticipate it and not implement their preferred policy but, rather, the best policy capable of surviving the vote (e.g Neidhart, 1970; Gerber, 1996*b*; Matsusaka and McCarty, 2001; Hug, 2004; Leemann and Wasserfallen, 2016).[5]

While the empirical evidence that this is the case in the US is mixed (Lascher, Hagen, and Rochlin, 1996; Gerber, 1996*a*), it is quite clear in the context of the Swiss cantons (Leemann and Wasserfallen, 2016). Indeed, this policymakers' behavior is a core characteristic of our concept of direct democracy.[6] It is also in line with many formal theoretical treatments on the subject where the policy-setter (legislature or government) does not implement its ideal point but rather its best policy that just fails to provoke a referendum (e.g., Romer and Rosenthal, 1978; Hug, 2004; Matsusaka and McCarty, 2001; Leemann and Wasserfallen, 2016). The core idea is that the representative system produces different outcomes when every governmental decision can potentially be challenged at the ballot box.

As a result, this understanding also (mostly) excludes the increasing number of referendums on EU-related matters in EU member states. In most cases, we argue here, these referendums are not actually elements of the institutionalized decision-making process and, therefore, in many respects follow a different logic than direct democracy as conceptualized in this paper (Heidbreder et al., 2019). Finally, there is a rare institution that straddles the line between direct and representative democracy: the recall (Kölz, 1996, p. 105). The recall allows citizens to collect signatures to unseat an elected official. While it falls somewhere between the representative and direct part, we eventually exclude it from the final measure as empirically it also appears to be an independent dimension unrelated to the other elements of direct democracy (for more details, see Figure 6 and subsection A1.3 in the appendix).

[5] See also Rappard (1912) for an early argument about anticipation effects. It is noteworthy that his argument is based on the initiative and who is allowed to participate in the law-making process (p. 138-139).

[6] The reason why this is relevant lies in its efficiency. No citizenry can vote on all matters but the constant threat of the ballot box can still exert an influence without one single voter having to collect signatures or to actually vote. This might be the truly fascinating part. For a more detailed version of the argument, see this blog post: http://www.democraticaudit.com/2016/06/22/is-direct-democracy-effective-yes-if-it-is-citizens-who-start-the-process/.

3.2 Measuring Sub-National Direct Democracy

The sub-national direct democracy index (snDDI) is based on a number of different institutions and indicators. Here, we present a measure that is based on the optional referendum and the initiative. We want to measure how easily citizens can use each of these two institutions to force the legislative or executive to change policy and whether they are actually used.

To measure the strength of each component we follow the proposed indicators of Altman (2017)'s cross-national direct democracy measure, with some exceptions (see later). We rely on the number of signatures that have to be collected (`signature`), the time provided to collect the required signatures (`time`), the presence (or absence) of any participatory requirement to validate the outcome of the vote (`quorum`)[7], a dummy of whether a ballot vote is required to pass any extra-majority to be considered successful (`extramaj`), and finally, a variable that indicates whether this institution has recently been used (`threat`), which is supposed to allow to distinguish cases where the *de jure* possibility is not used *de facto*.

3.2.1 Operationalization

The operationalization of time allowed for the collection of signatures (t measured in years) is $\sqrt{t}$ whereas all durations longer than one year are capped at one. A 9-month period to gather signatures yields a t value of 0.87 ($= \sqrt{\frac{9}{12}}$). This is taken directly from Altman (2017). Potential quorum (labeled q) is based on the presence or absence of a minimal participation requirement or a combination of participation and support. It is based on Altman (2011)'s status quo surface and takes the value of 0.5 if there are no restrictions. The extra-majoritarian factor (e_m) accommodates double-majority requirements. An example of such a double-majority is found in national Swiss initiatives where both a majority of the voters and a majority of the voters in a majority of the cantons need to approve. It is calculated as $e_m = 0.5 + \frac{1-D}{2}$ where D measures the share of districts that have to approve. The threat indicator measures whether the institution also exists *de facto* and any use of it over the last five years leads to its maximum value. After that, the score continuously declines by 0.06 per year – if the last

[7]For example, national referendums in Italy have a quorum of 50% and one frequent strategy (used by the group supporting the bill that would be toppled in the referendum ballot) is to fail to participate in order to reduce participation so that the outcome is not valid (Uleri, 2002).

use of the institution took place 22 or more years ago, the value is 0.

The one clear deviation from Altman's approach has to do with the operationalization of the signature threshold. This component is high when few signatures are needed and is low when many signatures are needed. We measure `signature` (s^*) as $s = \frac{0.01}{\frac{s\%}{2}+0.01}$. This function is continuous in $s\%$ (required share of citizens that have to sign) but much more sensitive than Altman's proposed $(1-s\%)$.[8] In the appendix, we visualize these differences (see Figure 5). In doing so, our measure is more sensitive to signature thresholds. This is important as the signature threshold directly translates into how easy or how difficult it is to employ these direct democratic institutions (see e.g Hug, 2004).

With these exceptions, we closely follow Altman (2015)'s general approach and apply it to sub-national units. We sum up the different elements that go into the final measure in Table 1. The table shows how the index is constructed across different institutions. Each institution's score ranges between 0 and 1 and we take the average value across all three institutions to generate an overall measure of sub-national Direct Democracy:

Table 1: Details of the snDDI

Institution	Openness	Effectiveness	Threat
Optional referendum (OR)	$I_{OR} \cdot s^*_{OR} \cdot t_{OR}$	$e_{M,OR}$	$I_{T,OR}$
Mandatory referendum (MR)	I_{MR}	$e_{M,MR}$	
Initiative (PI)	$I_{PI} \cdot s^*_{PI} \cdot t_{PI}$	$e_{M,PI}$	$I_{T,PI}$

$I_.$: does the institution exist? $I_{T,.}$: threat score of institution, $s^*_.$: Signature threshold, $t_.$: time to collect signatures, $e_{m,.}$: extra-majoritarian factor.

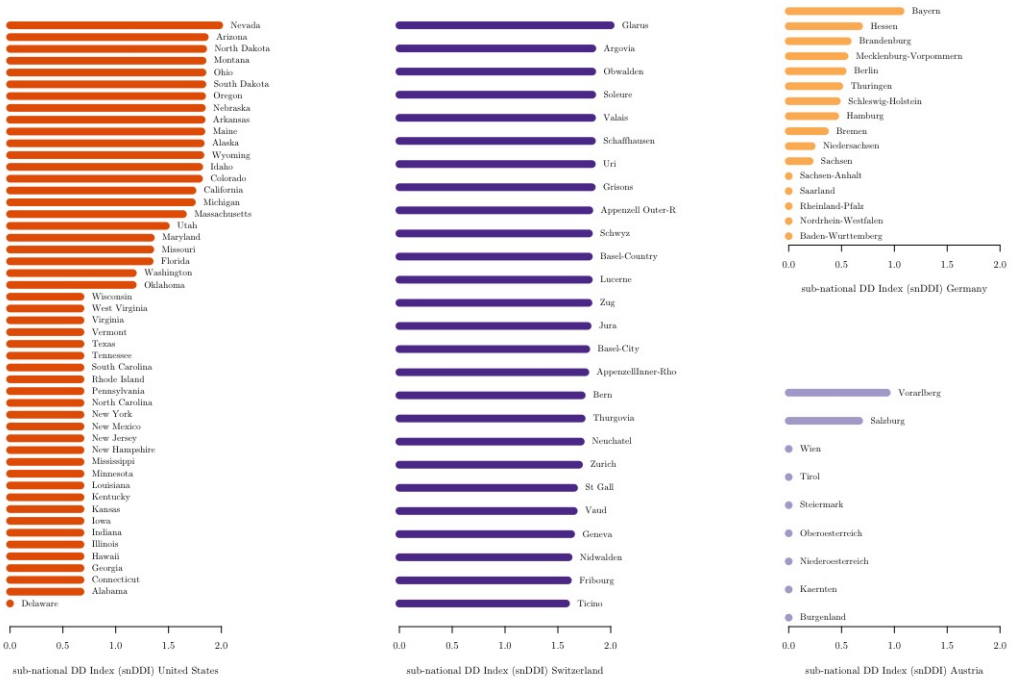
The next section provides a brief descriptive account of the generated measures in the US, Germany, Switzerland, and Austria.

[8] One difficulty in collecting data is that the signature threshold is defined in different ways. In Swiss cantons and German Länder it is usually formulated as the share of citizens eligible to vote. In the US, it is usually formulated as the share of people participating in the last gubernatorial elections. We translate the US rules into a comparable measure by taking vote turn-out into account.

3.2.2 Comparing Direct Democracy in Sub-National Units

Figure 1 displays our indicator's values for each US, German, Austrian, and Swiss sub-national unit. It is important to note that the index registers considerable variance in the degree of direct democracy, not only across but also within countries.

Figure 1: Comparison of snDDI



In Austria, most citizens do not have access to direct democracy; the exception are those living in Vorarlberg and Salzburg. In Germany, most Länder are familiar with direct democratic instruments, albeit of moderate strength. The US is an interesting case. About half of the states have DDIs but even the remaining states (with the exception of Delaware) score above zero because they require a mandatory referendum for changes in the state constitution. Finally, Swiss cantons have extensive DDIs, comparable to the top-ranking half of the states in the US.

The validation of this measure is not straight-forward. However, the Swiss cantons have their own continuous measure and one can compare the two to check if there is a strong commonality. We provide such a comparison in the appendix, demonstrating that the correlation

between the two measures is very high (see subsection A1.2). This is important because it also suggests that our measure is capable of capturing relevant variance within the subgroup of sub-national units with a high degree of direct democracy. We also provide a full table with sub-national units' individual values of the index (see subsection A1.1).

4 Empirical Tests: Are Direct Democratic Rights Related to Higher Satisfaction with Democracy?

In this section, we test our hypotheses. For this purpose, we use four surveys carried out in Austria, Germany, Switzerland, and the United States.[9] Each of these surveys asks respondents how satisfied with democracy they are and provides four answer categories (from 'very satisfied' to 'not satisfied at all').[10] We use this question for our dependent variable.[11]

At the individual level, our central explanatory variable is whether an individual is an electoral winner or loser. To create this variable, we first collected data on the composition all 101 units' sub-national governments in the year 2016. Considering that governments differ in their form and electoral procedures, this indicator may thus capture the incumbent's party affiliation in presidential systems like the U.S. states, a single-party government like in the German Bundesland Bayern, or several political parties forming a coalition government like in most German Bundesländer and particularly in all Austrian and Swiss sub-national governments. We then generate a binary variable indicating whether a respondent supports a political party in government (winner) or not (loser).[12]

[9] We rely on four large survey data sets: ANES 2016 (US), SELECTS 2015 (CH), AUTNES 2013 (AT), and GLES 2017 (DE).

[10] The precise formulations are: Austria: "How satisfied or dissatisfied are you, on the whole, with how democracy works in Austria? Very satisfied, fairly satisfied, not very satisfied or not at all satisfied?" (Translation); Germany: "On the whole, are you very satisfied, satisfied, fairly satisfied or not at all satisfied with the way democracy works in Germany?"(Translation); Switzerland: "Are you satisfied with the way democracy, on the whole, works in Switzerland?" (Translation) with response categories "very satisfied," "fairly satisfied," "not very satisfied," "not at all satisfied;" United States: "On the whole, are you [very satisfied, fairly satisfied, not very satisfied, or not at all satisfied] with the way democracy works in the United States?"

[11] This survey question is not uncontested. As Canache, Mondak, and Seligson (2001) demonstrate, the indicator captures multiple dimensions of political support, including system support, support for authorities, as well as support for democracy. In particular, it is not specifically targeted at the sub-national level. However, in our context, this corresponds to a perspective according to which direct democracy is more than a pure systemic feature quite well, and also involves specific political processes and cultures (Stadelmann-Steffen and Vatter, 2012).

[12] In some surveys, we have to use vote choice as an indicator. Since these are national election surveys,

Moreover, we integrate indicators of gender and age, seven variables for different education categories, and six employment categories. We have a fairly large data set and hence add all of these individual factors as binary indicators.

At the context level, we add the sub-national Direct Democracy Index (snDDI) that measures to what an extent a citizenry can rely on direct democratic procedures. A second factor that systematically differs across sub-national units is the size of the government majority. This variable allows us to account for varying degrees of majoritarian and consensual democracies (Anderson and Guillory, 1997; Lijphart, 1999). To operationalize it, we use the sum of the vote shares of all parties in government. The size of the governing coalition can influence satisfaction by affecting decisions' perceived legitimacy (e.g. André and Depauw, 2017; Arnesen et al., 2019). Later on, we also rely on an alternative measure that operationalizes horizontal power sharing (Bernauer and Vatter, 2019). We present an overview of all variables in the appendix (see subsection A1.4).

We estimate hierarchical ordered logit models where individuals i are nested in sub-national unit j for various model specifications. The underlying latent variable y^*_{ij} cannot be observed but the response to the satisfaction question y_{ij} is known:

$$y_{ij} = \begin{cases} 1 \text{ (not at all satisfied)} & \text{if } -\infty < y^*_{ij} < \tau_1 \\ 2 \text{ (not very satisfied)} & \text{if } \tau_1 < y^*_{ij} < \tau_2 \\ 3 \text{ (fairly satisfied)} & \text{if } \tau_2 < y^*_{ij} < \tau_3 \\ 4 \text{ (very satisfied)} & \text{if } \tau_3 < y^*_{ij} < \infty \end{cases}$$

We have a number of different model specifications. The following equation defines Model 1 in Table 2. Individual-level variables are grouped into a matrix $\boldsymbol{X}_{ij}$ and the direct democracy

it is possible that the vote for national legislative office does not align with sub-national partisan preference. Luckily, for Germany we have a direct question of party preferences regardless of elections. We also show that these results hold, when we exclude sub-national units for which we rely on a vote intention survey question and which have single member districts and multi-party systems (where strategic voting may occur). Some Swiss cantons fulfill all three criteria and we exclude them to ensure that this measurement issue does not hamper our analysis. In the appendix, we show these robustness tests and the results are substantively identical (see subsubsection A1.5.1)

index of unit j is captured in DD_j:

$$\begin{aligned} y_{ij}^{\star} &= \beta_{0j} + \boldsymbol{X}_{ij}\boldsymbol{\beta} + \beta_{DD} \times \mathrm{DD}_j + \varepsilon_{ij} \\ \beta_{0j} &= \beta_0 + \nu_j \\ \nu_j &\sim N(0, \sigma_\nu^2) \end{aligned}$$

In most models, we also include a fixed-effects specification to account for country difference, it is indicated in each table. All models are estimated in R relying on the `ordinal` package (Christensen, 2018). We start out with general models and then explore potential heterogeneous effects.

4.1 Satisfaction with Democracy *in General*

In a first empirical test we explore whether respondents living in sub-national units with more extensive direct democratic rights are *generally* more satisfied with democracy than respondents living in sub-national units with less extensive direct democratic rights.

Table 2 presents four different models. We find that the threshold parameters τ are well estimated and clearly separated across all four models. This indicates that the models are doing a good job in separating the response categories.

Model 1 contains the winner-loser variable, i.e., whether or not a respondent voted for a government party, and the sub-national Direct Democracy Index, as well as all other individual-level variables (their estimates are not included). Model 2 adds a context-variable accounting for the size of the majority. In Model 3, we add country fixed effects. Finally, in Model 4 we interact country indicators with the sub-national Direct Democracy Index to allow for country-specific effects.

Across all models, electoral winners display a significantly higher satisfaction with democracy than electoral losers. Turning to direct democracy, the picture is less clear. There is a positive estimate in Model 1 and this relationship remains positive and significant when we take the size of the majority into account. But once we allow for unobserved country-level factors – which constrains $\hat{\beta}_{\mathrm{DD}}$'s identification to within-country variation – there is no indication that there is a significant relationship between direct democracy and individual satisfaction

Table 2: Ordered Logit Models

	Model 1	Model 2	Model 3	Model 4
Voted for Party Government	0.42^{***}	0.41^{***}	0.38^{***}	0.38^{***}
	(0.04)	(0.04)	(0.04)	(0.04)
Direct Democracy	0.32^{***}	0.27^{***}	−0.04	−0.56
	(0.07)	(0.06)	(0.09)	(0.61)
Size of Majority		1.08^{***}	0.06	−0.00
		(0.28)	(0.30)	(0.32)
DD X Indicator AT				0.40
				(0.70)
DD X Indicator GE				0.63
				(0.65)
DD X Indicator US				0.52
				(0.62)
Individual-Level Variables	✓	✓	✓	✓
Country FE	×	×	✓	✓
τ_1	-2.50^{***}	-1.92^{***}	-3.52^{***}	-4.47^{***}
τ_2	-0.47^{**}	0.11	-1.50^{***}	-2.44^{*}
τ_3	2.64^{***}	3.22^{***}	1.62^{***}	0.67
$\ell\ell$	-11349.29	-11342.07	-11315.28	-11314.76
$N_{\text{Individuals}}$	11318	11318	11318	11318
N_{Groups}	101	101	101	101
$\hat{\sigma}^2_{\text{Groups}}$	0.14	0.11	0.05	0.05

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, all models include a gender indicator, age and age^2, indicators for seven education categories, whether somebody participated in the last elections, and six employment categories.

with democracy anymore.

Finally, we allow for country-specific relationships between individual satisfaction and sub-national levels of direct democracy in Model 4. Switzerland is our baseline and the three interactions show the deviation thereof. We find that in no country is the parameter estimate significant.[13]

These first tests fail to provide systematic empirical evidence in favor of the satisfaction hypothesis (see Model 3). Moreover, the estimates do not suggest that the relationship between direct democracy and satisfaction with democracy systematically varies across different representative contexts (see Model 4). One constraint of the models above is that the individual-level factors have fixed coefficients which cannot vary across countries. Since satisfaction may differ across, e.g., education groups in dissimilar ways across countries, we potentially mis-specify

[13]The significance cannot be gleaned from this output as we are lacking the covariance part. The 95% CI are as follows: AT $[-0.90, 0.54]$, GE $[-0.40, 0.51]$, and US $[-0.23, 0.15]$. In all countries the confidence interval contains zero.

the models. To rule this possibility out, we also run the models separately for each country (see Table A7 in the appendix). The results are consistent, i.e., the coefficient of our sub-national Direct Democracy Index is not significant in any model. We also run the same models with a measure of direct democracy usage rather than institutional provisions. The results presented in the appendix (see Table A9), are in line with the results presented here.

4.1.1 Winners and Losers When There is Some Direct Democracy

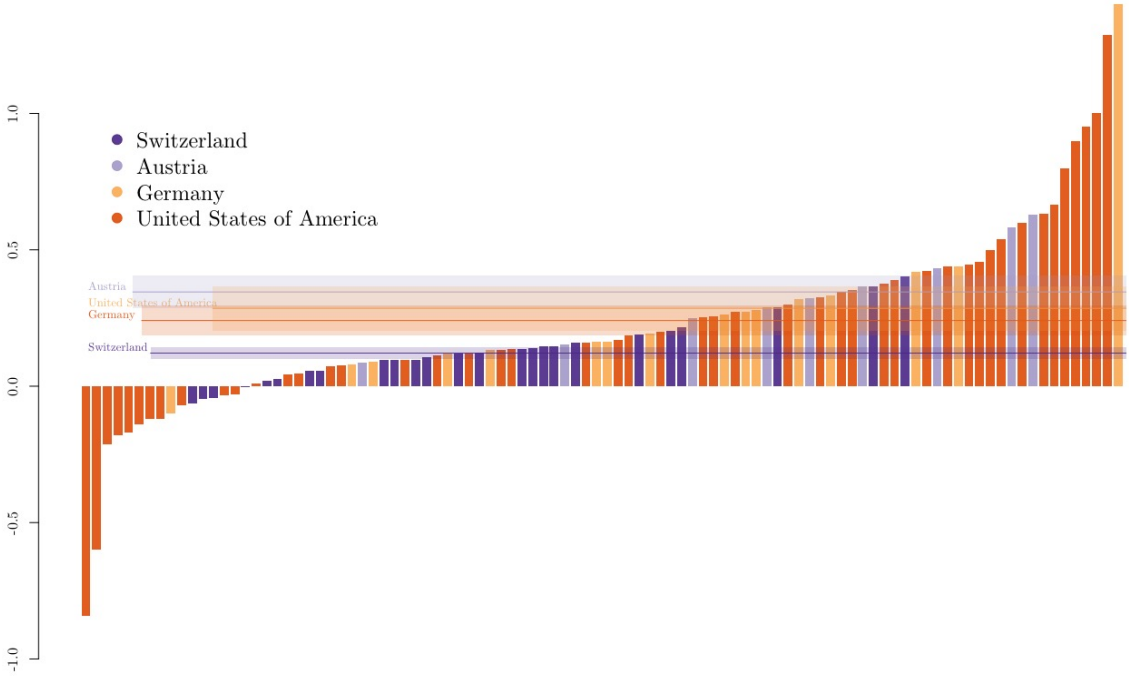
In the next step, we test whether electoral winners' and losers' satisfaction with democracy differ when, in addition to representative government, we also include direct democratic institutions. Before presenting the estimates, we explore the winner-loser gap descriptively (Anderson and Guillory, 1997). Each vertical bar in Figure 2 represents the average difference in satisfaction with democracy between electoral winners and losers. Positive values indicate that electoral winners are more satisfied with democracy than electoral losers. The horizontal lines show the national average gap per sub-national unit and its 68% confidence interval (± one standard error).

In most polities, electoral losers are less satisfied with democracy than electoral winners. Three observations are noteworthy. First, the winner-loser gap varies considerably between the 101 units, both across and within countries. Second, the variance in the winner-loser gap is very pronounced for the United States, while it is very limited for Switzerland. Third, the average gap is largest in Austria and the United States. At an individual level, the difference between electoral winners' and losers' satisfaction is about the same as between respondents that participate in elections and those that abstain.

We now turn to the second set of models where we evaluate how direct democratic institutions can affect the winner-loser gap. By including an interaction effect between direct democracy and the winner-loser variable, we allow the winner-loser gap to vary depending on the extent of direct democracy provided by the sub-national system. Table 3 presents three different models that all support the argument that direct democracy can help close the gap between the winners and the losers of the representative system.

We find a consistent negative and statistically significant interaction effect between the winner-loser gap and the extent of direct democracy afforded to citizens across all models in

Figure 2: Winner-Loser Gap by sub-national Unit



Note: Positive values indicate that winners are more satisfied with democracy than losers. Horizontal bars show national averages of the winner-loser gap plus/minus one standard error.

Table 3. Model 5 is the most parsimonious model and only includes whether a respondent is an electoral winner, the extent of direct democracy in the sub-national unit, and the interaction of both factors. In Model 6, we further include our proxy for the kind of representative system. Including this variable does not affect the results. Model 7 also includes an interaction with the size of the majority in government, which does not produce an effect. The effect of direct democracy–its potential to close the gap between electoral winners and losers–persists even after taking the extent of horizontal power sharing into account. In further tests, we also rely on a measure of horizontal power sharing from Bernauer and Vatter (2019) and find similar results (see Table A11). Like above, we also replicate these results with our measure of direct democracy usage rather than the institutional provisions. Table A10 in the appendix presents almost identical results.

To illustrate the model interaction, we resort to predicted probabilities across the full range of potential values for direct democracy. The simulated outcomes are shown in Figure 3. We

Table 3: Ordered Logit Models

	Model 5	Model 6	Model 7
Size of Majority		0.01	0.10
		(0.30)	(0.35)
Direct Democracy	0.10	0.10	0.09
	(0.09)	(0.10)	(0.10)
Voted for Party Government	0.76^{***}	0.76^{***}	0.86^{***}
	(0.10)	(0.10)	(0.23)
DD X Voted for Gov	-0.30^{***}	-0.30^{***}	-0.29^{***}
	(0.08)	(0.08)	(0.08)
Voted for Gov X Size of Majority			−0.17
			(0.36)
Individual-Level Variables	✓	✓	✓
Country FE	✓	✓	✓
τ_1	-3.34^{***}	-3.34^{***}	-3.29^{***}
τ_2	-1.30^{***}	-1.30^{***}	-1.24^{***}
τ_3	1.82^{***}	1.83^{***}	1.88^{***}
$\ell\ell$	-11287.23	-11287.23	-11287.12
$N_{\text{Individuals}}$	11318	11318	11318
N_{Groups}	101	101	101
$\hat{\sigma}^2_{\text{Groups}}$	0.08	0.08	0.08
$\hat{\sigma}^2_{\beta_{\text{Winner}}}$	0.08	0.08	0.08

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, all models include a gender indicator, age and age^2, indicators for seven education categories, whether somebody participated in the last elections, and six employment categories.

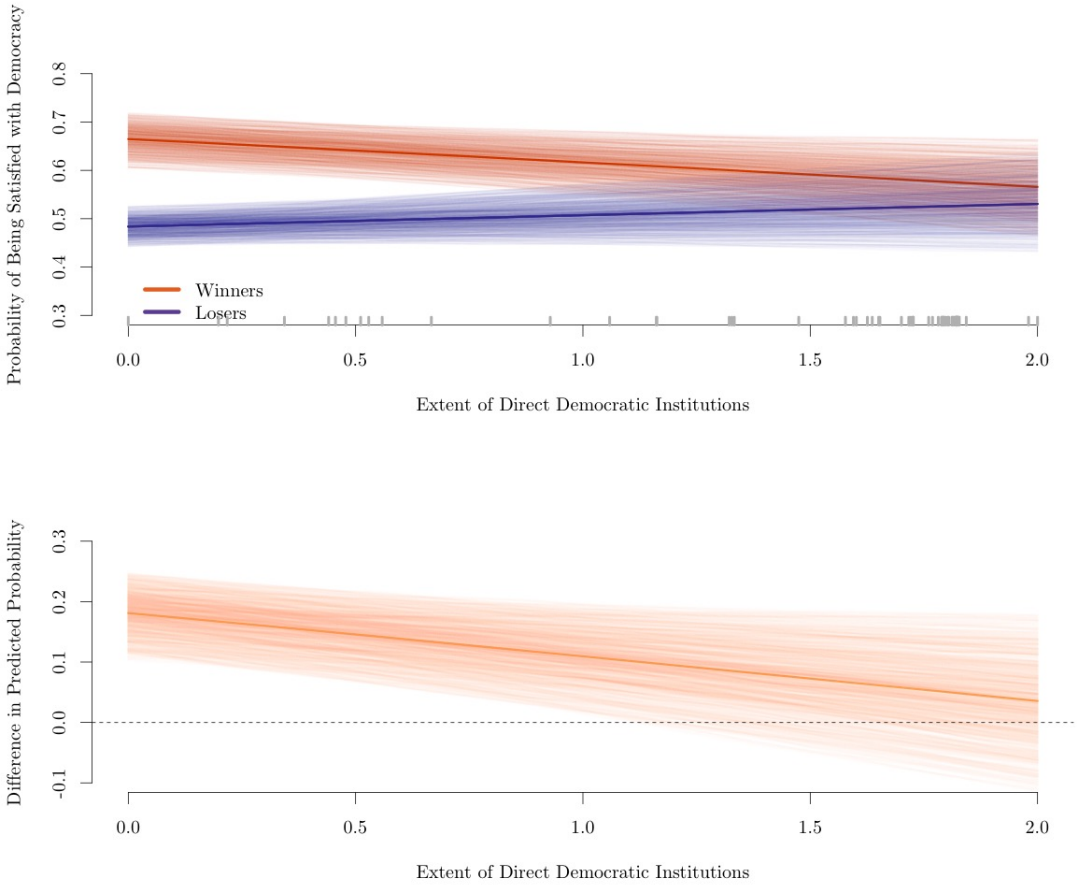
rely on a pseudo-Bayesian approach and generate 1,000 draws from a multivariate normal distribution where the central moment is the estimated coefficient vector and the second moment is the variance-covariance matrix. We use these to provide the first and second moments of the predicted outcomes.

The figure demonstrates that extensive direct democracy is related to relatively lower levels of electoral winners' satisfaction. Conversely, the association between direct democracy and the democratic satisfaction of electoral losers is positive (but not statistically significant). As the lower panel of Figure 3 illustrates, the difference between electoral winners' and losers' democratic satisfaction is statistically significant in sub-national units with no or low levels of direct democracy. The difference is about the same as that recorded between respondents participating in the election and respondents not participating in the election.[14]

However, as sub-national direct democracy increases, the winner-loser gap diminishes and loses statistical significance. When the sub-national direct democracy index is higher than 1,

[14]For a more in-depth treatment of participation and satisfaction with democracy, see Kostelka and Blais (2018).

Figure 3: Satisfaction with Democracy at Varying Levels of Direct Democracy (Winners and Losers)



Note: Upper panel shows the predicted probabilities of being satisfied with democracy. The lower panel shows difference in satisfaction with democracy for electoral winners and losers. All results are based on simulated predicted probabilities from posterior vector.

which is the case in all Swiss cantons, 23 US states, the German Bundesland Bayern and in the Austrian Bundesland Vorarlberg, there is no significant difference between winners and losers. Overall, these results clearly suggest that direct democracy closes the gap between the winners and the losers of the electoral system. This mechanisms is not bound to one particular representative system, as suggested by previous literature (Bernauer and Vatter, 2012; Radcliff and Shufeldt, 2016), but seems to be relevant across the majoritarian and consensual sub-national democracies of Switzerland, the US, Germany, and Austria. In fact, the interaction effect is also stable if an additional interaction between direct democracy and

the share of voters represented in government is added as a proxy for the distinction between consensual and majoritarian democracies. Moreover, the latter is not significant, corroborating our previous conclusion that the effect of direct democracy does not systematically vary across different representative systems.

5 Conclusion

This paper departs from the observation that the quantitative literature on direct democracy is locked within countries. As a consequence, many expectations about what direct democracy can and cannot do, empirically are built on weak empirical grounds. On the one hand, results obtained in one specific context tend to be generalized despite the fact that direct democratic institutions may generate varying mechanisms and outcomes in different representative contexts (Heidbreder et al., 2019; Hug, 2009). On the other hand, results are often inconsistent, possibly due to the fact that they are obtained in different contexts. To break out of these confinements, we propose a comparative sub-national perspective across national borders in an effort to analyze whether direct democratic institutions can systematically affect citizens' satisfaction with democracy (Frey and Stutzer, 2000, 2010). For this reason, we develop an index that allows to measure the strength of the direct democratic rights in sub-national units in the United States, Switzerland, Germany, and Austria. To the best of our knowledge, we present the most encompassing empirical test of the satisfaction hypothesis, including 101 sub-national units from four countries in which direct democracy – at least *de jure* – is a relevant element of the sub-national policy-making process.

A first main conclusion of this analysis is that there is no robust relationship between the extent of a sub-national unit's direct democracy and the level of citizens' satisfaction with how democracy works. Generally, whereas we can show that substantial differences in both the degree of direct democracy and democratic satisfaction exist within and across countries, there is no consistent association between the two phenomena once we control for country fixed effects.

The second important finding is that a higher degree of direct democracy is related to a smaller gap in the democratic satisfaction of electoral winners and losers. In contrast to

previous research, we find this equalizing mechanism to work across different representative systems, i.e., it is not limited to the specific combination of consensual and direct democracy (Bernauer and Vatter, 2012) or direct democracy in majoritarian democracies (Radcliff and Shufeldt, 2016). Moreover, our results suggest that the closing of the gap is the result of the lower satisfaction of electoral winners rather than the increased satisfaction of the losers.

The findings presented in this study have several implications. Theoretically and empirically, we add to the chorus of those arguing that direct democracy does not make democracy automatically better as such (see e.g., Freitag and Stadelmann-Steffen, 2010; Hainmueller and Hangartner, 2013; Leemann, 2015). Whereas our cross-country sub-national approach consistently shows that direct democracy does not lead to more democratic satisfaction *per se*, our results imply that direct democracy moderates the outcomes of the representative context in which these instruments are embedded. In particular, we document the interaction between representative and direct democracy at the individual level, i.e., the varying effects of direct democracy on electoral winners and losers. However, in this vein, our findings again fail to provide many reasons for a too optimistic conclusion. In fact, a strong reliance on direct democratic instruments does not make the losers more satisfied; rather, it seems to prevent winners from "taking it all." Direct democratic institutions narrow the gap between losers and winners by making everybody equally less satisfied. This is a glass half-full half-empty situation: direct democracy appears to further equality in satisfaction but does so at the cost of lowering the satisfaction of the electoral winners.

We need to acknowledge that, besides its merits, our design comes at the cost of some disadvantages. These are mainly related to the fact that we only have four observations on the country level, which limits our ability to disentangle the effects of sub-national direct democracy and the national representative system. A path for future research could be to apply this indicator to even more countries where direct democratic instruments exist at the sub-national level, as well as to other research questions to further improve our understanding of how direct democracy in different representative contexts "works."

References

Aarts, Kees, and Jacques Thomasson. 2008. "Satisfaction with democracy: Do institutions matter?" *Electoral Studies* 27: 5–18.

Altman, David. 2002. "Prospects for e-government in Latin America: satisfaction with democracy, social accountability, and direct democracy." *International review of public administration* 7(2): 5–20.

Altman, David. 2011. *Direct democracy worldwide*. Cambridge University Press.

Altman, David. 2015. "Measuring the Potential of Direct Democracy Around the World (1900-2014)." *Working Paper The Varieties of Democracy Institute* .

Altman, David. 2017. "The Potential of Direct Democracy: A Global Measure (1900-2014)." *Social Indicators Research* 133(3): 1207–1227.

Anderson, Cameron, and Elizabeth Goodyear-Grant. 2010. "Why are highly informed citizens sceptical of referenda?" *Electoral Studies* 29(2): 227–238.

Anderson, Christopher J., and Christine A. Guillory. 1997. "Political Institutions and Satisfaction with Democracy: A Cross-National Analysis of Consensus and Majoritarian Systems." *American Political Science Review* 91(1): 66–81.

Anderson, C.J., A. Blais, S. Bowler, T. Donovan, and O. Listhaug. 2005. *Losers' consent: Elections and democratic legitimacy*. Oxford: Oxford University Press.

André, Audrey, and Sam Depauw. 2017. "The quality of representation and satisfaction with democracy: The consequences of citizen-elite policy and process congruence." *Political behavior* 39(2): 377–397.

Arnesen, Sveinung, Troy S Broderstad, Mikael P Johannesson, and Jonas Linde. 2019. "Conditional legitimacy: How turnout, majority size, and outcome affect perceptions of legitimacy in European Union membership referendums." *European Union Politics* 20(2): 176–197.

Bernauer, Julian, and Adrian Vatter. 2012. "Can't get no satisfaction with the Westminster model? Winners, losers and the effects of consensual and direct democratic institutions on satisfaction with democracy." *European Journal of Political Research* 51(4): 435–468.

Bernauer, Julian, and Adrian Vatter. 2019. *Power diffusion and democracy: institutions, deliberation and outcomes*. Cambridge University Press.

Bowler, Shaun, and Todd Donovan. 2004. "Measuring the Effect of Direct Democracy on State Policy: Not All Initiatives Are Created Equal." *State Politics & Policy Quarterly* 4(9): 345–363.

Canache, Damarys, Jeffrey J. Mondak, and Mitchell A. Seligson. 2001. "Cross-National Research On Satisfaction With Democracy." *Public Opinion Quarterly* 65: 506–528.

Cheneval, Francis, and Alice el-Wakil. 2018. "The Institutional Design of Referendums: Bottom-Up and Binding." *Swiss Political Science Review* 24(3): 294–304.

Christensen, R. H. B. 2018. "ordinal—Regression Models for Ordinal Data.".

Dorn, David, Justina A.V. Fischer, Gebhard Kirchgässner, and Alfonso Sousa-Poza. 2007. "Is it culture or democracy? The impact of democracy and culture on happiness." *Social Indicators Research* 82(3): 505–526.

Esaiasson, Peter, Stefan Dahlberg, and Andrej Kokkonen. 2020. "In pursuit of happiness: Life satisfaction drives political support." *European Journal of Political Research* 59(1): 25–44.

Freitag, Markus, and Isabelle Stadelmann-Steffen. 2010. "Stumbling block or stepping stone? The influence of direct democracy on individual participation in parliamentary elections." *Electoral Studies* 29(3): 472–483.

Frey, Bruno, and Alois Stutzer. 2010. *Happiness and economics: how the economy and institutions affect human well-being.* Princeton University Press.

Frey, Bruno S. 1994. "Direct Democracy: Politico-Economic Lessons from Swiss Experience.".

Frey, Bruno S., and Alois Stutzer. 2000. "Happiness, Economy and Institutions." *The Economic Journal* 110(10): 918–938.

Fukuyama, Francis. 1989. "The end of history?" *The national interest* (16): 3–18.

Geissel, Brigitte, Anna Krämling, and Lars Paulus. 2019. "It depends... Different direct democratic instruments and equality in Europe from 1990 to 2015." *Politics and Governance* 7(2): 365–379.

Gerber, E. R. 1999. *The Populist Paradox: Interest Group Influence and the Promise of Direct Legislation.* Princeton: Princeton University Press.

Gerber, Elisabeth R. 1996*a*. "Legislative Response to the Threat of Popular Initiatives." *American Journal of Political Science* 40(1): 99–128.

Gerber, Elisabeth R. 1996*b*. "Legislative Response to the Threat of Popular Initiatives." *American Journal of Political Science* 40(1): 99–128.

Gregory, Robin, and Detlof von Winterfeldt. 1996. "The Effects of Electromagnetic Fields from Transmission Lines on Public Fears and Property Values." *Journal of Environmental Management* 48(3): 201–214.

Gross, Andreas, and Bruno Kaufmann. 2003. IRI Europe Country Index on Citizenlawmaking 2002. A Report on Design and Rating of the I & R Requirements and Practices of 32 European States. Technical report Initiative and Referendum Institute Europe Amsterdam: .

Hainmueller, Jens, and Dominik Hangartner. 2013. "Who Gets a Swiss Passport? A Natural Experiment in Immigrant Discrimination." *American Political Science Review* 107(1): 159–187.

Heidbreder, Eva G., Isabelle Stadelmann-Steffen, Eva Thomann, and Fritz Sager. 2019. "EU referendums in context: What can we learn from the Swiss case?" *Public Administration* 97: 370–383.

Hug, Simon. 2004. "Occurrence and Policy Consequences of Referendums. A Theoretical Model and Empirical Evidence." *Journal of Theoretical Politics* 16(3): 321–356.

Hug, Simon. 2009. "Some thoughts about referendums, representative democracy, and separation of powers." *Constitutional Political Economy* 20(9): 251–266.

Kitschelt, Herbert. 2002. *Popular Dissatisfaction with Democracy: Populism and Party Systems.* London: Palgrave Macmillan UK pp. 179–196.

Kölz, Alfred. 1996. "Die Bedeutung der Französischen Revolution." In *Die Ursprünge der schweizerischen direkten Demokratie*, ed. Andreas Auer. Basel: Helbing & Lichtenhahn.

Kölz, Alfred. 2004. *Neuere schweizerische Verfassungsgeschichte: Ihre Grundlinien vom Ende der alten Eidgenossenschaft bis 1848.* Vol. 1 Bern: Stämpfli.

Kostelka, Filip, and André Blais. 2018. "The Chicken and Egg Question: Satisfaction with Democracy and Voter Turnout." *PS: Political Science & Politics* pp. 1–6.

Lascher, Edward L., Michael G. Hagen, and Steven A. Rochlin. 1996. "Gun Behind the Door? Ballot Initiatives, State Policies and Public Opinion." *The Journal of Politics* 58(8): 760–775.

Leemann, Lucas. 2015. "Political Conflict and Direct Democracy: Explaining Initiative Use 1920-2011." *Swiss Political Science Review* 21(12): 596–616.

Leemann, Lucas. 2019. "Direct Democracy and Political Conflict Institutional Evolution in the 19th Century." *Working Paper, University of Zurich* .

Leemann, Lucas, and Fabio Wasserfallen. 2016. "The democratic effect of direct democracy." *American Political Science Review* 110(4): 750–762.

Liberini, Federica, Michela Redoano, and Eugenio Proto. 2017. "Happy voters." *Journal of Public Economics* 146: 41–57.

Lijphart, Arend. 1999. *Patterns of Democracy. Government Forms and Performance in Thirty-Six Countries.* New Haven/London: Yale University Press.

Linder, Wolf. 2010. *Swiss Democracy. Possible Solutions to Conflict in Multicultural Societies. Third Edition, Revised and Update.* Houndmills: Palgrave Macmillan.

Lipset, Seymour Martin. 1959. "Some social requisites of democracy: Economic development and political legitimacy." *American political science review* 53(1): 69–105.

Martini, Sergio, and Mario Quaranta. 2019. "Political support among winners and losers: Within- and between-country effects of structure, process and performance in Europe." *European Journal of Political Research* 58(1): 341–361.

Matsusaka, John G. 2000. "Fiscal effects of the voter initiative in the first half of the twentieth century." *The Journal of Law and Economics* 43(2): 619–650.

Matsusaka, John G. 2004. *For the many or the few: The initiative, public policy, and American democracy.* Chicago: University of Chicago Press.

Matsusaka, John G. 2005. "Direct Democracy Works." *Journal of Economic Perspectives* 19(2): 185–206.

Matsusaka, John G. 2010. "Popular Control of Public Policy: A Quantitative Approach." *Quarterly Journal of Political Science* 5(8): 133–167.

Matsusaka, John G, and Nolan M McCarty. 2001. "Political resource allocation: Benefits and costs of voter initiatives." *Journal of Law, Economics, and Organization* 17(2): 413–448.

Möckli, Silvano. 1994. *Direkte Demokratie. Ein internationaler Vergleich.* Bern: Paul Haupt.

Neidhart, Leonhard. 1970. *Plebiszit und pluralitäre Demokratie. Eine Ana- lyse der Funktion des schweizerischen Gesetzesreferendums.* Francke Verlag Bern.

Norris, Pippa. 2011. "Does democratic satisfaction reflect regime performance." *How democracy works: Political representation and policy congruence in modern societies* .

Olken, Benjamin A. 2010. "Direct democracy and local public goods: Evidence from a field experiment in Indonesia." *American political science review* 104(2): 243–267.

Radcliff, Benjamin, and Gregory Shufeldt. 2016. "Direct Democracy and Subjective Well-Being: The Initiative and Life Satisfaction in the American States." *Social Indicators Research* 128(3): 1405–1423.

Rappard, William E. 1912. "The Initiative, Referendum and Recall in Switzerland." *American Political Science Review* 6(3): 345–366.

Romer, Thomas, and Howard Rosenthal. 1978. "Political Resource Allocation, Controlled Agendas, and the Status Quo." *Public Choice* 33(4): 27–43.

Singh, Shane, Ekrem Karakoç, and André Blais. 2012. "Differentiating winners: How elections affect satisfaction with democracy." *Electoral Studies* 31(1): 201–211.

Smith, Daniel A., and Caroline J. Tolbert. 2004. *Educated by initiative : the effects of direct democracy on citizens and political organizations in the American states.* University of Michigan Press.

Smith, Daniel A., Caroline J. Tolbert, and Amanda M. Keller. 2010. "Electoral and structural losers and support for a national referendum in the U.S." *Electoral Studies* 29(3): 509–520.

Stadelmann-Steffen, Isabelle, and Adrian Vatter. 2012. "Does Satisfaction with Democracy Really Increase Happiness? Direct Democracy and Individual Satisfaction in Switzerland." *Political Behavior* 34(3): 535–559.

Stutzer, Alois. 1999. "Demokratieindizes für die Kantone der Schweiz." *Institute for Empirical Research in Economics University of Zurich* (23): 1–23.

Stutzer, Alois, and Bruno S. Frey. 2003. "Institutions Matter for Procedural Utility: An Economic Study of the Impact of Political Participation Possibilities." In *Economic Welfare, International Business and Global Institutional Change*, ed. R. Mudambi, P. Navarra, and G. Sobbrio. Cheltenham, UK / Northhampton: Northhampton: Edward Elgar Publishing pp. 81–99.

Uleri, Pier V. 2002. "On referendum voting in Italy: YES, NO or non–vote? How Italian parties learned to control referendums." *European Journal of Political Research* 41(6): 863–883.

Vatter, Adrian. 2002. *Kantonale Demokratien im Vergleich. Entstehungsgründe, Interaktionen und Wirkungen politischer Institutionen in den Schweizer Kantonen.* Opladen: Leske und Budrich.

Webb, Paul, Susan Scarrow, and Thomas Poguntke. 2019. "Party organization and satisfaction with democracy: inside the blackbox of linkage." *Journal of Elections, Public Opinion and Parties* pp. 1–22.

A1 Appendix

A1.1 Values of the snDDI

Country	Unit	snDDI	Country	Unit	snDDI
CH	Zurich	1.70	US	Montana	1.82
CH	Zug	1.79	US	Nebraska	1.82
CH	Valais	1.82	US	Nevada	1.98
CH	Vaud	1.65	US	New Hampshire	0.67
CH	Uri	1.82	US	New Jersey	0.67
CH	Ticino	1.58	US	New Mexico	0.67
CH	Thurgovia	1.73	US	New York	0.67
CH	Schwyz	1.79	US	North Carolina	0.67
CH	Soleure	1.83	US	North Dakota	1.83
CH	Schaffhausen	1.82	US	Ohio	1.82
CH	St Gall	1.65	US	Oklahoma	1.16
CH	Neuchatel	1.72	US	Oregon	1.82
CH	Lucerne	1.79	US	Pennsylvania	0.67
CH	Jura	1.78	US	Rhode Island	0.67
CH	Grisons	1.82	US	South Carolina	0.67
CH	Geneva	1.63	US	South Dakota	1.82
CH	Fribourg	1.60	US	Tennessee	0.67
CH	Basel-City	1.77	US	Texas	0.67
CH	Basel-Country	1.79	US	Utah	1.47
CH	Bern	1.73	US	Vermont	0.67
CH	Argovia	1.83	US	Virginia	0.67
CH	Obwalden	1.83	US	Washington	1.16
CH	Nidwalden	1.60	US	West Virginia	0.67
CH	Appenzell Outer-Rhodes	1.80	US	Wisconsin	0.67
CH	AppenzellInner-Rhodes	1.76	US	Wyoming	1.80
CH	Glarus	2.00	DE	Baden-Wurttemberg	0.00
US	Alabama	0.67	DE	Bayern	1.06
US	Alaska	1.80	DE	Berlin	0.51
US	Arizona	1.84	DE	Brandenburg	0.56
US	Arkansas	1.81	DE	Bremen	0.34
US	California	1.73	DE	Hamburg	0.44
US	Colorado	1.79	DE	Hessen	0.67
US	Connecticut	0.67	DE	Mecklenburg-Vorpommern	0.53
US	Delaware	0.00	DE	Niedersachsen	0.22
US	Florida	1.32	DE	Nordrhein-Westfalen	0.00
US	Georgia	0.67	DE	Rheinland-Pfalz	0.00
US	Hawaii	0.67	DE	Saarland	0.00
US	Idaho	1.79	DE	Sachsen	0.20
US	Illinois	0.67	DE	Sachsen-Anhalt	0.00
US	Indiana	0.67	DE	Schleswig-Holstein	0.46
US	Iowa	0.67	DE	Thuringen	0.48
US	Kansas	0.67	AT	Burgenland	0.00
US	Kentucky	0.67	AT	Kaernten	0.00
US	Louisiana	0.67	AT	Niederoesterreich	0.00
US	Maine	1.81	AT	Oberoesterreich	0.00
US	Maryland	1.33	AT	Salzburg	0.67
US	Massachusetts	1.64	AT	Steiermark	0.00
US	Michigan	1.72	AT	Tirol	0.00
US	Minnesota	0.67	AT	Vorarlberg	0.93
US	Mississippi	0.67	AT	Wien	0.00
US	Missouri	1.33			

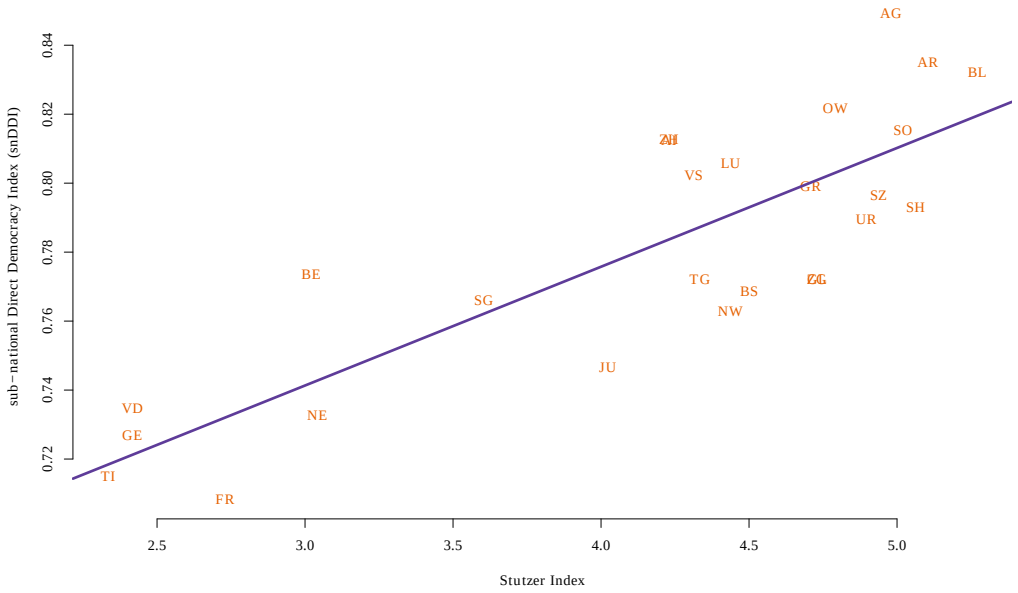
A1.2 Comparing the sub-national direct democracy index (snDDI) to Existing Indices

In this section, we briefly compare our new index, the snDDI, with another measure. The snDDI is the average score a sub-national unit reaches based on its (optional and mandatory) referendum score and its initiative score.

There is a single widely used measure for the extent of direct democratic rights at the sub-national level and that is the Stutzer index that covers all Swiss cantons (Stutzer, 1999).

We can now show how closely (or not) the snDDI is related to the Stutzer index.

Figure 4: Stutzer Index and snDDI for Swiss Cantons



The Stutzer index only exists for 24 cantons (rather than all 26) since Stutzer does not code the cantons that still rely on an annual citizens' assembly. Figure 4 illustrates the close correlation between the proposed index and the pre-existing measures of the 24 Swiss cantons (.85). Most important, despite the fact that the snDDI is conceptualized for cross-country comparisons including countries and sub-national units with quite limited direct democracy, this new index is also capable of capturing variance in a context with extensive direct democracy, such as Switzerland.

A1.3 Details of the sub-national Direct Democracy Index (snDDI)

The sub-national direct democracy index (snDDI) is based on a number of different institutions and indicators. Here, we present a measure here that is based on the optional and mandatory referendum and the initiative. We want to measure how easily each of these institutions can be used by citizens to force the legislative or executive to change policy, and whether they are actually used.

To measure the strength of each component we follow – with some exceptions (see later) – the proposed indicators of Altman (2017)'s cross-national direct democracy measure. We rely on the signatures that have to be collected (`signature`), the allowed time for collecting the required signatures (`time`), whether there is any participatory requirement to validate the vote outcome (`quorum`)[15], a measure of whether a ballot vote is required to pass any extra-majority to be considered successful (`extramaj`), and finally, a variable that indicates whether this institution has been used recently (`threat`) - this is supposed to allow to distinguish cases where there is the *de jure* possibility which is not used *de facto*.

Operationalization

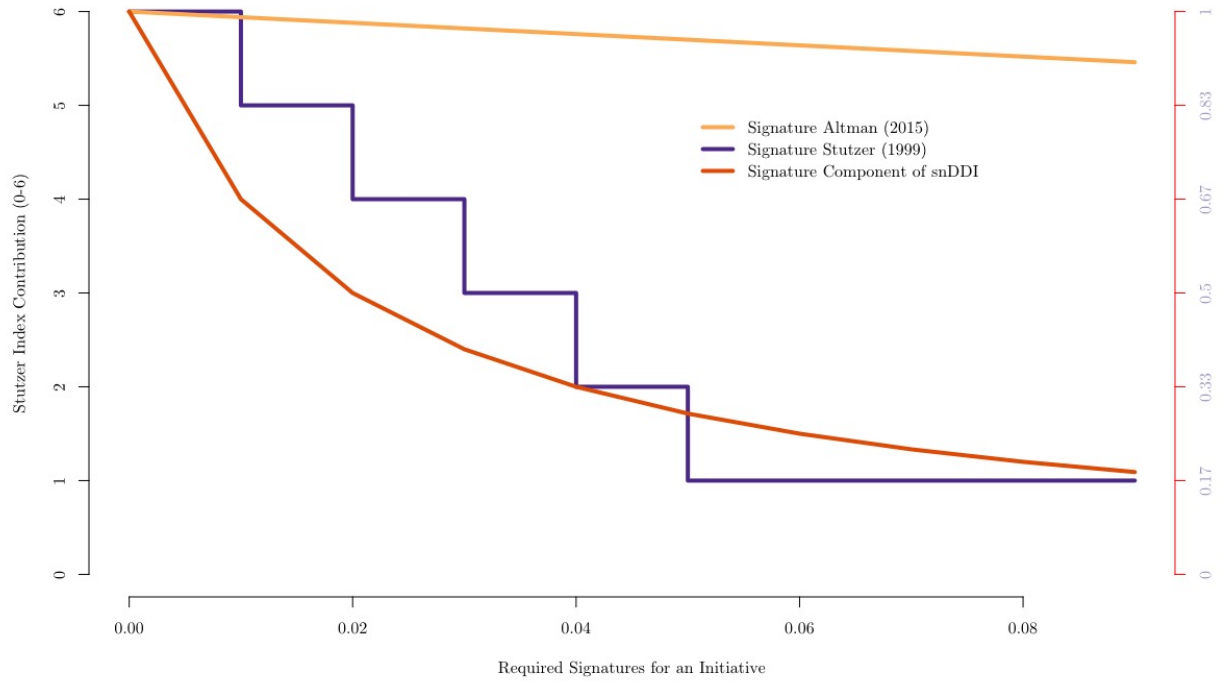
The operationalization of `time` (t measured in years) is $\sqrt{t}$ whereas all durations longer than one year are capped at one. If one has 9 months to gather signatures the value of `time` will be 0.87 ($= \sqrt{\frac{9}{12}}$). This is taken directly from Altman 2017. The `quorum` dimension is based on whether there is any extra-majority requirement. This is based on Altman (2011)'s status quo surface and takes the value of 0.5 if there are no restrictions. The indicator `extramaj` (e_m), which accommodates double-majority requirements such as the majority of cantons and votes for national initiatives in Switzerland, is $e_m = 0.5 + \frac{1-D}{2}$ whereby D measures the share of districts that have to approve. The `threat` indicator measures whether the institution also exists *de facto* and any use in the last five years leads to its maximum value. After that, the score continuously declines by 0.06 per year – if the last use of an institution took place 22 or more years ago the value is 0. All these measures closely follow Altman 2017 with the minor deviation of rescaling to ensure that the index ranges between 0 and 1 whereas Altman's index ranges between 0 and 2.

There is one clear deviation from Altman's approach and it has to do with the operationalization of the signature threshold. This component should be high when very few signatures are needed and low when many signatures are needed. We measure how low the signature threshold is and rely on a quickly declining function for the number of required signatures. We measure `signature` (s) as $s = \frac{0.01}{\frac{s\%}{2}+0.01}$. This function is continuous in $s\%$ (required share

[15]For national referendums in Italy there is a quorum of 50% and one frequent strategy (of the group supporting the bill that would be toppled by the referendum ballot) is to abstain from participating in order to reduce the participation enough so that the outcome is not valid Uleri (2002).

of citizens that have to sign) but much more sensitive than the $(1-s\%)$ proposed by Altman (2017).[16] Unlike Stutzer (1999), who defines thresholds and assigns these thresholds to values between 6 (lowest requirements) and 1 (highest requirements), we use a function that is continuous and is not a step-function. Figure 5 shows how potential signature requirements are translated into an index according to different coding rules from different indices.

Figure 5: Comparison of how various indices account for the signature threshold



The left y-axis ranges between 0 and 6 range which is the original Stutzer (1999) scale. The right y-axis is on the 0 to 1 range used by the snDDI. Figure 5 illustrates how the signature threshold decreases Altman's index very slowly since the function is $(1-s\%)$, i.e., the difference between 1% and 10% is literally 9% points of the index range. Based on that one could say that gathering 2% of signatures is half as difficult as gathering 4%. However, as we want to argue, this does not take into account how prohibitively difficult gathering signatures becomes

[16] One difficulty in collecting data is that the signature threshold is defined in different ways. In Swiss cantons, it is usually formulated as a share of all citizens eligible to vote. In the US, it is usually formulated as a share of people participating in the last gubernatorial election. We translate the US rules into a comparable measure by taking vote turn-out into account.

at some point, if even more signatures are required. We side with Stutzer and operationalize a much quicker decline but do want to retain the continuity of the function (found in Altman's index). To this end, we rely on the afore-described function where collecting 1% of all voters' signatures is half-way between collecting 1 single signature (which is the case in the canton of Appenzell Innerrhoden where any individual citizen can force a vote) and requiring 4% of all citizens.

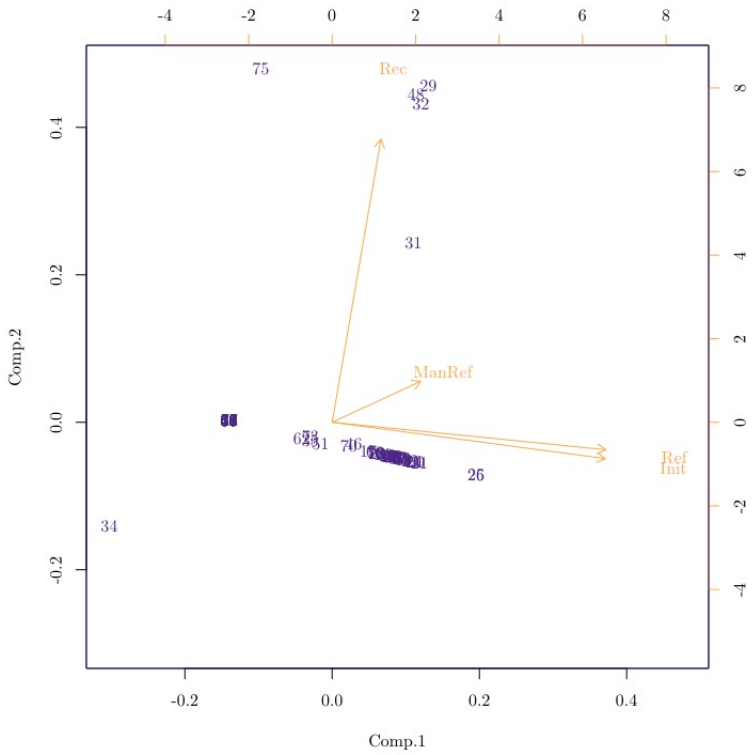
We measure the initiatives and optional referendums value as $\texttt{score} = \frac{0.01}{\frac{s\%}{2}+0.01} \cdot \texttt{time} \cdot (1 - \texttt{quorum}) \cdot \texttt{extramaj} \cdot \texttt{threat}$. While this suffices to generate the snDDI, we also operationalize the recall (using the same operationalization as for the optional referendum and initiative) and the mandatory referendum for *illustrative* purposes. The mandatory referendum is measured as $\texttt{score} = (1 - \texttt{quorum}) \cdot \texttt{extramaj}$. We then add the scores over all institutions and take the average value which will lie between 0 and 1.

Why the focus on optional referendum, mandatory referendum, and the initiative? Before proceeding to the operationalization of the different indicators, we discuss the question of which components should be covered. To that end, we perform a principle components analysis and enter the scores of the mandatory referendum, the optional referendum, the initiative, and the recall (another institution that we considered in the first place). The recall's index value is calculated in the same way as those of the optional referendum and the initiative. Figure 6 is a biplot (Gregory and von Winterfeldt, 1996) and shows that three of the four institutions seem to explain similar variance across all US states and Switzerland whereas, the recall is picking up on variation unexplained by these other institutions.

Apart from the theoretical reasons outlined earlier in the article, these empirical results further indicate the somewhat different nature of the recall. The recall is not just another variation of direct democracy; rather, it seems to be a special form of it that does not co-occur in a similar way as the other direct democratic variations. Figure 6 also suggests that the mandatory referendum has a weaker correlation with this underlying dimension than the optional referendum or the initiative. Part of the reason is that the mandatory referendum exists in all states and cantons that have direct democratic rights and also exists in those states that do not have additional direct democratic rights, with the single exception of Delaware. There

also is no variation in that measure, as there are no signature thresholds (or circulation times for that matter).

Figure 6: Principle Components, input: recall, mand/opt referendum, initiative



A1.4 Variables Overview

Table A4

Statistic	N	Mean	St. Dev.	Min	Max
Satisfaction with Democracy	11,888	2.862	0.706	1.000	4.000
Age	12,481	0.492	0.182	0.150	0.960
Female	12,638	0.514	0.500	0.000	1.000
Participated in Last National Election	12,609	0.727	0.446	0.000	1.000
Direct Democracy Index	12,690	1.141	0.657	0.000	2.000
Past DD Usage	12,690	2.803	3.202	0.000	11.400
Size of Majority	12,690	0.643	0.154	0.154	0.967
Voted for Party in Government	12,690	0.368	0.482	0	1

A1.5 Robustness Section

A1.5.1 Excluding Single-Member Districts

The variable "winner" is coded based on the responses of the individual survey takers. In Switzerland, we have to rely on a survey question about whom the respondent voted for rather than on a general partisan ID question. Since some cantons are single-member districts, this raises two problems: i) strategic voting may produce measurement error and ii) respondents' responses may not reflect their preference since their preferred party does not run a candidate. In the rest of the countries, we either have a different survey question (tapping directly into partisan preference) or respondents live in PR multi-member districts.

To ensure that our estimation results are not affected by this measurement issue, we re-estimate the first seven models and drop any Swiss canton that constitutes a single-member district in the national legislative elections.

Table A5: Replication of Table 2 without Single-Member Districts

	Model 1-r	Model 2-r	Model 3-r	Model 4-r
Voted for Party Government	0.42***	0.41***	0.39***	0.39***
	(0.04)	(0.04)	(0.04)	(0.04)
Direct Democracy	0.27***	0.23***	−0.04	−0.97
	(0.07)	(0.07)	(0.09)	(0.80)
Size of Majority		1.11***	0.18	0.14
		(0.29)	(0.32)	(0.35)
DDI X Indicator AT				0.87
				(0.88)
DDI X Indicator GE				1.04
				(0.83)
DDI X Indicator US				0.93
				(0.81)
Individual-Level Variables	✓	✓	✓	✓
Country FE	×	×	✓	✓
τ_1	−2.51***	−1.92***	−3.40***	−5.03***
τ_2	−0.49**	0.11	−1.37***	−3.00*
τ_3	2.60***	3.20***	1.72***	0.09
$\ell\ell$	-11009.16	-11002.10	-10979.32	-10978.48
$N_{\text{Individuals}}$	10913	10913	10913	10913
N_{Groups}	95	95	95	95
$\hat{\sigma}^2_{\text{Groups}}$	0.14	0.11	0.05	0.05

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, all models include a gender indicator, age and age^2, indicators for seven education categories, and six employment categories.

Table A6: Replication of Table 3 without Single-Member Districts

	Model 5-r	Model 6-r	Model 7-r
Size of Majority		0.12	0.17
		(0.32)	(0.37)
Direct Democracy	0.08	0.08	0.08
	(0.10)	(0.10)	(0.10)
Voted for Party Government	0.74^{***}	0.74^{***}	0.79^{**}
	(0.10)	(0.10)	(0.24)
DD X Voted for Gov	-0.27^{**}	-0.27^{**}	-0.27^{**}
	(0.08)	(0.09)	(0.09)
Voted for Gov X Size of Majority			−0.09
			(0.37)
Individual-Level Variables	✓	✓	✓
Country FE	✓	✓	✓
τ_1	-3.33^{***}	-3.24^{***}	-3.21^{***}
τ_2	-1.29^{***}	-1.20^{***}	-1.17^{**}
τ_3	1.82^{***}	1.91^{***}	1.93^{***}
$\ell\ell$	-10952.12	-10952.05	-10952.02
$N_{\text{Individuals}}$	10913	10913	10913
N_{Groups}	95	95	95
$\hat{\sigma}^2_{\text{Groups}}$	0.09	0.09	0.09
$\hat{\sigma}^2_{\beta_{\text{Winner}}}$	0.09	0.09	0.09

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, all models include a gender indicator, age and age^2, indicators for seven education categories, and six employment categories.

Both Table A5 and Table A6 present results that are substantively identical to the ones in the main tables presented in the manuscript (Table 2 and Table 3). We can rule out the possibility that our measures can be error-prone for some observations and show that our main findings in this manuscript also hold when we exclude observations that could be affected by this measurement problem.

A1.5.2 Country-Specific Models

Table A7: Additional Analysis - Country-Specific Models

	Model CH	Model AT	Model DE	Model US
Direct Democracy	−0.59	−0.14	0.06	−0.04
	(0.47)	(0.27)	(0.37)	(0.09)
Voted for Party Government	0.13	0.71***	0.63***	0.47***
	(0.08)	(0.13)	(0.10)	(0.08)
Individual-Level Variables	✓	✓	✓	✓
Country FE	.	.	.	.
τ_1	−5.35***	−1.81*	−3.07***	−1.90***
τ_2	−2.95***	−0.16	−1.03*	0.15
τ_3	0.27	2.42**	2.27***	3.25***
$\ell\ell$	-4520.40	-1125.44	-1969.39	-3573.89
$N_{\text{Individuals}}$	4908	977	2001	3432
N_{Groups}	26	9	16	50
σ^2_{Groups}	0.02	0.01	0.16	0.03

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table A8: Additional Analysis - Country-Specific Models with an Interaction

	Model CH	Model AT	Model DE	Model US
Voted for Party Government	−1.47	0.68***	0.61***	0.49
	(1.37)	(0.17)	(0.16)	(0.25)
Direct Democracy	−1.01	−0.29	0.04	−0.03
	(0.71)	(0.39)	(0.43)	(0.10)
DD x Voted for Party Government	0.96	0.31	0.11	−0.06
	(0.80)	(0.55)	(0.31)	(0.22)
Individual-Level Variables	✓	✓	✓	✓
Country FE	.	.	.	.
τ_1	−6.02***	−1.77*	−3.07***	−1.90***
τ_2	−3.62**	−0.12	−1.03*	0.15
τ_3	−0.39	2.47**	2.27***	3.28***
$\ell\ell$	-4515.14	-1124.99	-1968.13	-3570.77
$N_{\text{Individuals}}$	4908	977	2001	3432
N_{Groups}	26	9	16	50
σ^2_{Groups}	0.05	0.02	0.21	0.04
$\sigma^2_{\beta_{\text{Groups}}}$	0.03	0.05	0.03	0.18

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

A1.5.3 Usage Rather Than Institutional Provision

The results in Table A9 and Table A10 are replications of Table 2 and Table 3. Nevertheless, here we do not rely on the sub-national Direct Democracy Index but rather on the actual usage of these instruments. We count the number of votes that took place over the last five years and use the mean number of direct democratic votes per year. This allows us to see whether the unearthed relationship is related to the *de jure* rules or rather to the *de facto* use of these institutions.

Table A9: Replication Table 2 with Usage

	Model 1-u	Model 2-u	Model 3-u	Model 4-u
Voted for Party Government	0.42^{***}	0.41^{***}	0.39^{***}	0.38^{***}
	(0.04)	(0.04)	(0.00)	(0.04)
Direct Democracy Use	0.06^{**}	0.06^{**}	-0.01	0.02
	(0.02)	(0.02)	(0.01)	(0.02)
Size of Majority		1.27^{***}	-0.06^{***}	0.02
		(0.29)	(0.00)	(0.30)
DD Use X Indicator GE				0.57
				(0.46)
DD Use X Indicator US				-0.07^{*}
				(0.03)
Individual-Level Variables	✓	✓	✓	✓
Country FE	×	×	✓	✓
τ_1	-2.71^{***}	-1.98^{***}	-3.63^{***}	-3.38^{***}
τ_2	-0.68^{***}	0.05	-1.60^{***}	-1.35^{***}
τ_3	2.43^{***}	3.16^{***}	1.51^{***}	1.76^{***}
$\ell\ell$	-11354.51	-11345.29	-11315.58	-11312.26
$N_{\text{Individuals}}$	11318	11318	11318	11318
N_{Groups}	101	101	101	101
$\hat{\sigma}^2_{\text{Groups}}$	0.16	0.13	0.05	0.04

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, all models include a gender indicator, age and age^2, indicators for seven education categories, and six employment categories.

The interaction between the usage of direct democracy and the US country indicator is significant. To see whether this translates into a country-specific effect, we compute the marginal effect of direct democracy usage in the US. The 95% confidence interval for the marginal effect $[-0.087, 0.004]$ overlaps 0. Hence, there is no significant relationship between the average use of direct democratic institutions and reported levels of satisfaction with democracy.

In Table A10, we find a significant interaction effect, but note that the effect of direct democracy for winners is not statistically significant (95% confidence interval is $[-0.070, 0.005]$).

Table A10: Replication of Table 3 with Usage

	Model 5-u	Model 6-u	Model 7-u
Size of Majority		0.04	0.19
		(0.31)	(0.35)
Direct Democracy Use	0.03	0.03	0.03
	(0.02)	(0.02)	(0.02)
Voted for Party Government	0.60***	0.60***	0.79***
	(0.08)	(0.08)	(0.23)
DD Use X Voted for Gov	−0.06***	−0.06**	−0.06**
	(0.02)	(0.02)	(0.02)
DD Use X Share of Voters in Gov			−0.32
			(0.36)
Individual-Level Variables	✓	✓	✓
Country FE	✓	✓	✓
τ_1	−3.34***	−3.31***	−3.21***
τ_2	−1.29***	−1.27***	−1.17***
τ_3	1.83***	1.86***	1.96***
$\ell\ell$	-11288.79	-11288.78	-11288.40
$N_{\text{Individuals}}$	11318	11318	11318
N_{Groups}	101	101	101
$\hat{\sigma}^2_{\text{Groups}}$	0.09	0.09	0.09
$\hat{\sigma}^2_{\beta_{\text{Winner}}}$	0.09	0.09	0.09

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, all models include a gender indicator, age and age^2, indicators for seven education categories, and six employment categories.

But even if we are just interested in a potential differential effect, i.e. just the interaction term, we note that it is substantively much smaller than the interaction term as presented in the main analyses of the paper - it is about five times smaller. We take this as an indication that the *de jure* relationship may not be the only avenue but it definitely is the dominant one.

A1.6 Alternative Measure for Horizontal Power Sharing

In Table 3 in the main text, models include a variable for the size of the government coalition. However, the size of the governing majority is likely correlated with the extent of proportional representation or power sharing in general, so it is not a good measure. It is difficult to find a good measure that can capture this dimension. Here, we rely on a measure of horizontal power sharing borrowed from Bernauer and Vatter (2019). Our one caveat is that they do not have a measure for three Swiss cantons (Bernauer and Vatter, 2019, see p.214). Nevertheless, here we present a replication of Table 3 based on 98 sub-national units (excluding Glarus and the two Appenzell due to missingness).

Table A11: Alternative Measure for Horizontal Power Sharing

	Model 5-ps	Model 6-ps	Model 7-ps
Power Sharing		−0.19*	−0.12
		(0.09)	(0.10)
Direct Democracy	−0.08	0.08	0.06
	(0.10)	(0.10)	(0.09)
Voted for Party Government	0.74***	0.74***	0.72***
	(0.10)	(0.10)	(0.09)
DD X Voted for Gov	−0.27***	−0.26***	−0.21**
	(0.08)	(0.08)	(0.08)
Voted for Gov X Power Sharing			−0.11
			(0.06)
Individual-Level variables	✓	✓	✓
Country FE	✓	✓	✓
τ_1	−3.29***	−3.55***	−3.54***
τ_2	−1.26***	−1.51***	−1.50***
τ_3	1.86***	1.60***	1.62***
$\ell\ell$	-11093.11	-11091.22	-11089.64
$N_{\text{Individuals}}$	11095	11095	11095
N_{Groups}	98	98	98
$\hat{\sigma}^2_{\text{Groups}}$	0.08	0.08	0.08
$\hat{\sigma}^2_{\beta_{\text{Winner}}}$	0.08	0.06	0.03

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, all models include a gender indicator, age and age^2, indicators for seven education categories, and six employment categories.

These results are both empirically and substantively identical to the ones presented in the main part of the manuscript.