

# The Effect of Direct Democracy on Turnout: Voter Mobilization or Participatory Momentum?

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Tomáš Dvořák<sup>1</sup>, Jan Zouhar<sup>2</sup>, and Jakub Novák<sup>1</sup>

## Abstract

Does direct democracy lead to increased electoral turnout? Research in the United States has demonstrated this effect and proposed two reasons for it: (1) the process of being involved in direct political participation may educate citizens and lead to their increased long-term political engagement (this explanation draws on the theory of participatory democracy) and/or (2) underlying issues and competitive campaigning draw public interest and cause higher turnout, although this effect is election-specific and short term. Recent empirical findings overwhelmingly favor the latter hypothesis although both mechanisms seem to apply. However, research on this topic is made difficult by the fact that direct democracy and elections take place simultaneously in the United States, which makes it hard to disentangle the effects of each. We present a study from the Czech Republic where direct democracy is not tied to elections. We analyze the effects of local/municipality direct democracy and demonstrate that it leads to increased turnout in upcoming local and national elections. We demonstrate a strong effect sparked by competitive direct democracy campaigns as well as a relatively weak long-term institutional effect of direct democracy.

## Keywords

direct democracy, turnout, voting behavior, participatory theory

## Introduction

The expansion of direct democracy has taken place at local as well as national levels in many western democracies over recent decades (Altman 2010; LeDuc 2003; Matsusaka 2005). This has given rise to important questions about the policy and nonpolicy consequences of direct democracy. These debates have often revolved around issues of voter competence (Hobolt 2007; Lupia 1992, 1994), the effect of direct democracy on fiscal policies/economic performance (Feld and Kirchgässner 2000; Matsusaka 2005), or minority rights oppression (Haider-Markel, Querze, and Lindaman 2007).

The question of whether direct democracy has a positive effect on voter turnout is potentially one of the key nonpolicy consequences of direct democracy and has been the subject of some debate. The idea that direct democracy should bring about increased participation in electoral processes originally stems from participatory theories of democracy (Barber 1984; Pateman 1970). Direct experience with effective political decision-making, unmediated by political parties, should be an educative experience for citizens, leading to an increased interest in politics and an increase in political efficacy, as well as higher electoral turnout.

However, the debate on this issue in the United States is rather inconclusive, and the empirical evidence is somewhat contradictory. Although there is general agreement that direct democracy increases turnout at least in some types of elections, the so-called “midterms” in particular (Schlozman and Yohai 2008),<sup>1</sup> it is not clear exactly what it is about direct democracy that leads to enhanced turnout.

Two general explanations are conceivable. First, the process of direct political participation in itself causes long-term increased turnout by educating voters and increasing their interest in political institutions and processes (Bowler and Donovan 2002; Tolbert, McNeal, and Smith 2003; Tolbert and Smith 2005, 290–91). Second, certain campaigns or certain underlying issues lead to voter mobilization and cause short-term and election-specific effects (Biggers 2011; Childers and Binder 2012;

<sup>1</sup>Charles University, Prague, Czech Republic

<sup>2</sup>University of Economics, Prague, Czech Republic

## Corresponding Author:

Tomáš Dvořák, Institute of Sociological Studies, Faculty of Social Sciences, Charles University, U Kříže 8, 158 00, Prague 5, Jinonice, Czech Republic.  
Email: dvoraktom@atlas.cz

Schlozman and Yohai 2008; Smith 2001). The former explanation emphasizes the process itself, and is more akin to the logic of participatory theories of democracy, which suggest that direct democracy institutions transform the long-term attitudes of citizens to politics. The latter explanation argues that the forces driving increased turnout are election- or issue-specific and affect turnout in the immediate elections only, with no long-lasting effects beyond these elections. It has been proposed that this short-term mobilizing effect can occur as a result of either competitive campaigns that surround citizen initiatives (Childers and Binder 2012) or of controversial social/moral issues that underlie the ballot (Biggers 2011; Grummel 2008).

Importantly, it has also been suggested (Smith and Tolbert 2009, 138; Tolbert and Smith 2005, 304) that increased turnout may result from both long-term and short-term mechanisms working simultaneously together to increase turnout: when the direct democracy process is salient, it mobilizes voters and also facilitates citizen education and learning. However, low-profile direct democracy campaigns unrelated to citizen concerns are unlikely to draw popular interest and will lead neither to public deliberation nor educative effects. Dyck and Seabrook (2010, 205) claimed that both mechanisms contribute to increased turnout, with the long-term educative effect being much weaker than stronger short-term mobilization factors.

As empirical research has been largely unable to establish a clear causal effect of direct democracy on political efficacy (Dyck and Lascher 2009; Schlozman and Yohai 2008), and because recent research strongly favors explanations based on controversial issues or competitive campaigns in citizen initiatives (Childers and Binder 2012; Dyck and Seabrook 2010; Schlozman and Yohai 2008), the explanation based on participatory theory and institutional effects seems less relevant than the short-term election-specific effects in explaining the influence of direct democracy on turnout in elections. However, as argued by Schlozman and Yohai (2008, 472), direct democracy in the United States is not really the best example to use to examine the participatory hypothesis, because for direct political participation to have a permanent attitude-changing impact, it should involve smaller democratic arrangements, enabling face-to-face contact and public deliberation.

Last, there is some evidence for a negative effect of direct democracy on electoral turnout. Research from Switzerland, a country where direct democracy is used as an essential and common part of the political process, showed that the frequent use of direct democratic procedures is associated, due to voter fatigue, with a decreased probability of voter turnout in local and national elections (Freitag and Stadelmann-Steffen 2010).

We herein intend to reexamine the link between direct democracy and subsequent turnout for the case of the Czech Republic. We focus on local direct democracy, namely, citizen initiatives and referenda in Czech municipalities, and examine the effects of direct democracy in a comparative setting. We test not only the tenets of participatory theory in the search for long-term and general institutional effects of direct democracy but also whether support can be found for alternative hypotheses emphasizing the role of competitive campaigns and controversial issues on the ballot. Over the past decade, there have been about two hundred local referenda and citizen initiatives in Czech municipalities, which constitute a sufficient basis for an empirical analysis.

The first aim of the present article is then to ascertain whether local direct democracy in the Czech Republic has a positive effect on turnout in upcoming and subsequent local as well as national elections. Given that previous research was almost exclusively concerned with the U.S. and Swiss cases, we investigate the link between direct democracy and turnout in the completely different cultural and institutional setting of a post-Communist country. A significant advantage of the Czech case is the fact that local direct democracy is not tied to elections because it takes place between local and national elections. This makes it possible to isolate the unique effect of direct democracy on turnout in upcoming elections. The second aim of the article is to further explore the factors explaining the effect of direct democracy on turnout. We assess whether there is evidence to support participatory theory in the context of local direct democracy in the Czech Republic and investigate the long-term institutional effects of direct democracy. In addition, we also examine whether there is a mobilization effect caused by competitive campaigns or controversial issues on the ballot as the alternative hypotheses suggest. We focus our analysis on the level of the municipality, unlike studies of ballot measures from the United States, which relate to large states.

The first incidence of direct democracy in the Czech Republic at local level only took place after 2000. We work with the time frame 1998 to 2010 and analyze whether direct democracy led to increased turnout in national and local elections during this time; local and national elections took place in 1998, 2002, 2006, and 2010.

The remainder of the paper proceeds as follows. First, we explain why the theory of participatory democracy suggests that direct political participation leads to greater political engagement, and we also include critiques of this theory. In the following section, we summarize the existing empirical evidence about the effect of direct democracy on electoral turnout. Next, we formulate our hypotheses and explain the institutional setup of local

direct democracy in the Czech Republic. We conclude with our presentation of the empirical analysis and discussion of the results.

## Normative Theories of Democracy and Their Critics

Direct political participation has been viewed by normative theorists as the remedy to the shortcomings of representative democracy (Barber 1984; Mansbridge 1983; Pateman 1970; Saward 1998). Expanding opportunities for direct political participation should not only lead to greater empowerment and autonomy of citizens, but should also enhance citizenship values and improve the functioning of representative institutions (Warren 1992, 8). For Barber (1984), the idea of participatory democracy involves not just the isolated act of participation but also deliberation and collective action. It is this deliberation and collective action that connect individuals to the larger community. Direct forms of political participation engage individuals in political discussions about their rights, various political issues, and even the political system itself (Weitz-Shapiro and Winters 2008). The act of direct political participation should, thus, increase political knowledge, confidence, and consciousness of one's own interests and competence (Mansbridge 1983).

Participatory theorists have generally held the view that small-scale democratic arrangements should enable the most face-to-face deliberation and should be most conducive to civic education (Pateman 1970). Bachrach and Botwinick (1992, 29), therefore, argued for the introduction of direct forms of political participation at all possible levels (from local communities and neighborhoods to workplace democracy), and emphasized the transformative consequences of direct citizen involvement.

Although there is strong popular support for direct democracy in most affluent democracies (Bowler, Donovan, and Karp 2007), Hibbing and Theiss-Morse (2002) used the concept of stealth democracy to argue that direct political engagement is not something that citizens naturally prefer. They argue that strong popular support for direct democracy does not imply that people want to be more involved in politics, but rather an expectation that representative democracy should work better. In addition, Dyck (2009, 559) argued that in the United States, direct democracy has a negative influence on political trust, because it places citizens in an adversarial relationship with governments. This contradicts the expectation from participatory theory that direct democracy should generate positive attitudes to other forms of political participation, and represents a negative unintended consequence of direct democracy. In a similar vein, Hill (2003) claimed that the key danger of direct democracy is that it may cause popular alienation, cynicism, and eventual citizen

withdrawal from politics due to a lack of accountability and underdeliberation of issues on the ballot.

## Examining the Effect of Direct Democracy on Turnout: U.S. Evidence

The potentially edifying effect of direct democracy on turnout has mainly been investigated in the United States, where in many states there is the opportunity for citizens to become directly involved in the political process through citizen initiatives and legislative referenda.

However, the empirical evidence for this edifying effect is mixed. Analyses of individual-level data have shown that the positive effect of ballot initiatives can be seen in the results of U.S. midterm elections. However, for presidential elections, the evidence is ambiguous and contradictory (Tolbert, Bowen, and Donovan 2008; Tolbert, McNeal, and Smith 2003; Schlozman and Yohai 2008). Aggregate-level analyses, in contrast, have shown this effect to be present in both kinds of election, midterm as well as presidential, albeit stronger in midterm elections (Tolbert and Smith 2005) because presidential elections are more competitive and in such high-profile campaigns, ballot initiatives play a less important role. However, in midterm elections, ballot initiatives play a more important role in the campaign, and the effect of these may, therefore, be expected to be stronger (Biggers 2011; Tolbert and Smith 2005).

Nonetheless, it has also been argued that it is not the initiative as such that causes an increase in electoral turnout. Several alternative explanations, which we generally call "election specific" effects, were proposed. Some highlighted the nature of the underlying issue (Biggers 2011; Grummel 2008; Smith 2001). For example, Biggers (2011) argued, based on multilevel analyses, that ballot measures concerned with social issues (such as abortion, gay marriage, legalization of marijuana, etc.) result in higher turnout. A different finding was presented by Childers and Binder (2012) who argued that it was campaign competitiveness in citizen initiatives that drove turnout. Both these alternative explanations, emphasizing either social issues or competitive campaigns, refute the participatory hypothesis and the assumption of the educative effects of direct democracy.

The analyses of the effect of direct democracy on turnout thus offer three general explanations. First, it is the underlying burning issues (Biggers 2011, Grummel 2008) that mobilize voters and drive turnout. Second, it has been suggested that it is the campaign competitiveness of citizen initiatives (Childers and Binder 2012) that drives turnout. Both of these explanations view the effect of direct democracy as election-specific. The third explanation, drawing from the participatory theory of democracy,

views the effects of direct democracy as long term and emphasizes citizen learning, educational consequences, and the importance of the direct democracy process itself. Nonetheless, it has been acknowledged that both short-term and long-term effects are relevant and that both mechanisms work together to increase turnout (Tolbert and Smith 2005, 303–04).

However, recent empirical findings somewhat disprove the participatory justification and favor explanations based on election-specific effects. The reason why direct democracy increases turnout is not that the process as such brings about a long-term change in the attitudes of citizens to politics. Instead, increased turnout is more likely to be election-specific, and caused by competitive campaigns in ballot initiatives or underlying contentious social issues. This is an effect that fades soon after the election. Analyses that explicitly test whether there is any long-term carry-over in increased turnout to subsequent elections have found either no evidence supporting the participatory hypothesis (Childers and Binder 2012; Schlozman and Yohai 2008), or only a very small institutional effect of direct democracy on turnout (Dyck and Seabrook 2010). Moreover, Schlozman and Yohai (2008, 478) argue that because the effect of ballot initiatives on turnout was present for only some midterm elections, this seems to decrease the explanatory power of participatory theory. If we suppose that direct democracy has transformative effects along the lines suggested by normative participatory theory, we would expect to see the effect in all midterm elections (and not just some), and also in presidential elections.

In addition, as participatory theory places a fair degree of emphasis on the effect of direct political participation on political efficacy (Pateman 1970, chap. 3), it could be argued that if this participatory line of reasoning is valid, direct democracy should increase not just turnout but also political efficacy. Although there is some evidence that direct democracy does, indeed, do this (Bowler and Donovan 2002; Hero and Tolbert 2004), more recent studies (Dyck and Lascher 2009; Schlozman and Yohai 2008) have suggested that there is only weak evidence for an increase in political efficacy caused by direct democracy. Despite using a range of data and sampling techniques, Dyck and Lascher (2009) failed to identify a generally positive correlation between direct democracy and (either internal or external) political efficacy. In addition, Schlozman and Yohai (2008, 482) found no positive effect of direct democracy on political efficacy in elections since the late 1980s.

To conclude, the existing empirical evidence favors the “campaign competitiveness/salient social issue” justification. Specifically,

1. There is strong evidence that the presence of competitive campaigns surrounding citizen initiatives and/or salient social issues on the ballot increases election turnout. In addition, it has not been confirmed that there is any carry-over effect to subsequent elections, nor is there substantial evidence for the long-term transformation of citizenship values.
2. Empirical evidence suggests that although the effect on turnout seems to be strong in the case of midterm elections, it is much weaker or nonexistent in the case of presidential elections. According to theories of participatory democracy, the effect of direct political participation should be transformative, leading to changes in identity and attitude. If ballot measures increase political interest and engagement, neither the type of political process nor the level of competitiveness should matter.
3. In addition, the effect of ballot measures on political efficacy appears to be ambiguous, if not absent.

## Aims and Hypotheses

The twin aims of our analysis may be described as follows. First, we wish to discover whether or not we can verify the finding indicating the positive effect of direct democracy on turnout. Second, we wish to contribute to the debate on the underlying causes of this effect and reexamine this matter by bringing new empirical data from a different cultural environment.

The institutional and cultural context of our analysis is very different to the U.S. case. There are 6,250 municipalities in the Czech Republic, with an average size of approximately 1,700 inhabitants. Therefore, we analyze the effects of direct democracy in local settings. This follows the suggestion of Schlozman and Yohai (2008, 484) that it is important to analyze the consequences of direct democracy in smaller communities, allowing closer personal contact and more deliberation. We use data aggregated on the level of municipalities due to the fact that relevant individual data are nonexistent in the Czech context.

We formulate three hypotheses derived from the theory of participatory democracy and two hypotheses that focus on election-specific mobilization effects. Of these latter two hypotheses, one tests whether competitive campaigns drive turnout. The other focuses on controversial and mobilizing issues on the ballot.

In the analysis that follows, we provide only a partial operationalization of participatory theory. To provide a complete test of the theory, we would have to show that direct democracy increases political efficacy (or political sophistication), which in turn leads to increased turnout in elections. Because the individual data that would allow

for this are nonexistent, we are unable to test the theory fully. However, we use the available aggregate data for Czech municipalities to test those tenets of the theory that it is possible to test given the data limitations. The hypotheses related to the participatory theory are as follows.

**Hypothesis 1 (H1):** Local direct democracy increases turnout in upcoming elections for different types of political processes (i.e., direct democracy has a positive effect on turnout in both national and local elections).<sup>2</sup>

The first hypothesis is based on the assumption that direct democracy should have a broad positive impact on various forms of political processes, not just one. Therefore, we consider turnout in local as well as national elections.

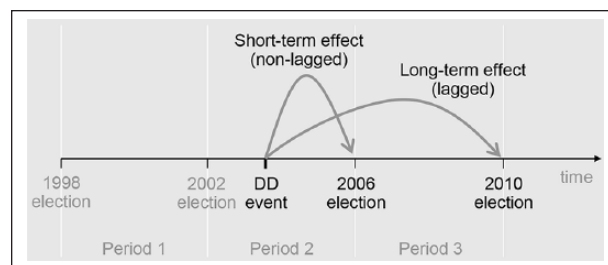
**Hypothesis 2 (H2):** The effect of direct democracy on turnout in upcoming elections is greater in cases where it is initiated by citizens rather than by the incumbent (local governmental) authorities.

The participatory theory favors citizen-initiated direct democracy because it allows new issues to be brought into the political agenda through the collection of citizen signatures. It is not only the direct vote as such but rather the process that precedes it that is viewed as essential (Setälä and Schiller 2012, 1–9).

Citizen-initiated direct democracy is a spontaneous deliberative process in the Czech Republic. When citizens initiate the direct democracy process, signatures must be collected and the process has to be initiated by residents of the municipality. When an incumbent (the mayor) initiates it, no collection of signatures is required. Only in the case of citizen initiatives does the process involve two stages: persuasion of citizens for their support to put the issue on the ballot, followed by campaigning in the direct democracy event.

Second, proponents of the participatory theory of democracy have emphasized the role of citizen initiatives (Altman 2010, 2; Pateman 1970) also due to the fact that incumbent-initiated direct democracy usually has strategic aims (Laisney 2012; Prosser 2016), whereas citizen-initiated direct democracy brings to the ballot issues that are closer to citizen concerns.

Finally, in the United States, powerful interest groups and political entrepreneurs have power to use initiatives to put issues on the ballot and attempt to sway public opinion (Smith 2013, 50). In the Czech Republic, however, this is unlikely. The required number of signatures for an average municipality (1,700 inhabitants) is 30 percent of all inhabitants. Because decisions in local direct democracy can relate only to issues in the competence of, and relevant to, the given municipality, only issues with strong local support can be put on the ballot.



**Figure 1.** Illustration of short- and long-term effects of a direct democracy event on election turnout.

Based on participatory theory, it can be hypothesized that initiatives will stimulate turnout in elections in the Czech Republic more because they involve a more intense experience of direct political participation compared with government-initiated direct democracy.

**Hypothesis 3 (H3):** The effect of direct political participation is long term, that is, not confined to one occasion and lasting longer than one election cycle.

H3 predicts that the effect on political participation is long term, lasting longer than one election cycle. Here, we test the effects of local referenda and initiatives not just on upcoming elections, but also on those in the next election cycle; for example, if there was a referendum or initiative in 2003, we gauge the effect on election turnout in 2006 and 2010 (see Figure 1). We refer to the effect of a direct democracy event from 2003 on turnout in elections in 2010 as a “lagged” effect.

**Hypothesis 4 (H4):** Local direct democracy events that involve competitive campaigns will have greater effect on turnout in upcoming elections than referenda and initiatives with campaigns that are not so competitive.

H4 reflects the fact that some researchers (Childers and Binder 2012) argue that the cause of the increased electoral turnout is the competitiveness of campaigns in citizen initiatives.<sup>3</sup>

**Hypothesis 5 (H5):** Local referenda and citizen initiatives with controversial underlying issues will have greater effect on turnout in upcoming elections than those that do not include such issues on the ballot.

H5 is inspired by the analysis of Biggers (2011), who argued that it is controversial, easy to understand, provoking, and emotionally rich social issues on the ballot in direct democracy events that are the single cause of increased turnout in elections.

Social issues cannot be the subject of votes in local direct democracy<sup>4</sup> in the Czech Republic. Nonetheless, we decided to investigate whether the issue on the ballot might be the driving force of the effect on turnout. We identified not-in-my-backyard (NIMBY) referenda and citizen initiatives as suitable cases of direct democracy dealing with issues that were easy to understand, emotional, conflictual, and with strong mobilization potential (Devine-Wright 2014). NIMBY referenda and initiatives are cases in which the issue on the ballot is related to development projects with the potential to affect life in the community significantly. “NIMBY” essentially implies the opposition of a municipality’s residents to a proposal for a new development project. We distinguish events with a NIMBY issue on the ballot not only because they were very frequent (two-thirds of all direct democracy events were related to NIMBY issues) but also because these cases were conflictual and strongly engaged the entire local community. NIMBY issues have a very strong mobilization effect and create strong social networks and ties (Shemtov 2003). We use the case of NIMBY referenda and initiatives to investigate whether underlying conflictual burning issues in direct democracy events had an effect on turnout in upcoming elections.

To sum up, H1 to H3 test the predictions derived from the participatory theory of democracy. H4 and H5 test the alternative mechanisms related to mobilization effects. It is also conceivable that local direct democracy might have a negative effect on turnout in upcoming elections. This result is predicted by voter fatigue theory, that expanding opportunities for political participation may overburden citizens in the long run.

Finally, we wish also to emphasize that the value of the data we use lies in the fact that direct democracy in the Czech Republic is not tied to elections. In the United States, where direct democracy and elections happen at the same time, it is almost impossible to disentangle the effects of the two. Discerning real causality is, thus, highly problematic in the U.S. context.

## Czech Republic: Policy Context and Local Direct Democracy

The Czech Republic is a post-Socialist central European country with a population of approximately 10.5 million. Representative democracy is organized at three spatial levels: state (bicameral parliament), region (fourteen regions) and municipality (6,250 municipalities).

In comparison with other European countries, the structure of the Czech local governance is very fragmented. Not only is the average municipality size very small, but local politics is essentially nonpartisan, with political parties playing only a minor role (Egner, Sweeting, and Klok 2013). Local politics tends to be

rather uncompetitive (mainly due to the absence of partisanship) but is often mobilized by conflicts and external threats. Local party systems are, thus, reactive, very unstable, and built with clear tactical aims, such as opposition to some development projects or in response to intermunicipality conflict; they often dissolve after initial goals are reached. This leads to significant fluctuations in political participation, which vary greatly both across municipalities and over time (Müller, Fleissner, and Kný 2015, 130).

The use of local/municipality referenda and initiatives in the Czech Republic is regulated by a law passed in 1992. The law specifies the legal requirements and provides the basic regulations: (1) local direct democracy can only relate to an issue in the competency of the local government; (2) only referenda and initiatives with turnouts of at least 35 percent are valid; (3) local direct democracy can be initiated either by the local government or by a citizen petition, which launches a citizen initiative. In the latter case, the law specifies the minimum number of signatures required, which depends on the number of inhabitants.<sup>5</sup> After collecting the required number of signatures and framing the question on the ballot, the proposal is submitted.

In summary, the direct democracy analyzed in this article relates to Czech municipalities with an average population of about 1,700. The issue on the ballot must concern local affairs in the authority of the local government, but there are no other limitations. After the introduction of the legislation in the early 1990s, it took about a decade before municipalities learned how to use and adopt this direct form of citizen involvement in local politics. Nonetheless, from 2000 until the end of 2012, there were about two hundred direct democracy events.

As for terminology, we use the term *referendum* for votes initiated by governmental authority and the term *citizen initiative* for votes organized by citizens themselves. Collectively, they are referred to as “direct democracy events.”

## Data and Methods

We tested our hypotheses using a series of regression models explaining the impact of local direct democracy on citizen participation in the election process. The main features of our models are as follows: (1) two alternative measures of participation in the election process are considered, (2) we directly account for possible changes in demographic and socioeconomic conditions in all individual municipalities over time, and (3) we apply panel data methods that allow for time-constant unobserved heterogeneity among the municipalities.

## Data

A combination of existing data collected by the Interior Ministry and an extensive web-based search was used to collect comprehensive evidence about local direct democracy events in the Czech Republic. For each referendum and citizen initiative, we recorded the actual question on the ballot, the number of eligible voters, voter turnout, and the margin of victory. We collected information from about two hundred local direct democracy events between 2000 and 2012.

The database of the Interior Ministry, which contains information on most of the local direct democracy events that have taken place since the year 2000, served as the core data source. The database has been irregularly maintained since 2012, making post-2012 data incomplete. Therefore, we only work with data until 2012.

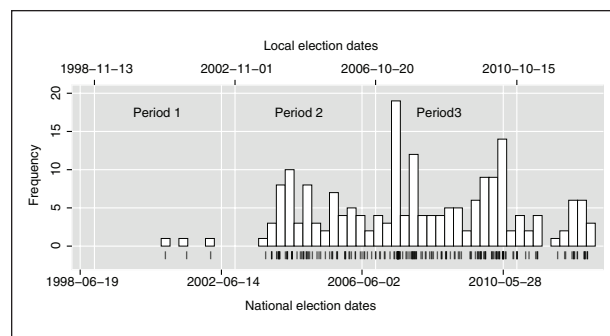
In addition to the information on local referenda and initiatives, we used all available data related to all Czech municipalities, namely, data on election outcomes and municipalities' characteristics (population size, age structure, migration, and unemployment rate). Data on the sociodemographic structure of Czech municipalities, provided by the Czech Statistical Office, were used as controls in the regression models. Therefore, in the regression models, we were able to control for changing population size, age structure, migration, and unemployment rates for all 6,250 municipalities in the Czech Republic for the period 1998–2010.

As emphasized above, local direct democracy in the Czech Republic is tied to neither local nor national elections. Figure 2 shows the timing of referenda and initiatives, along with the dates of both national and local elections. Within the studied period, there were regular four-year election cycles; national and local elections always took place in the same year (1998, 2002, 2006, and 2010).

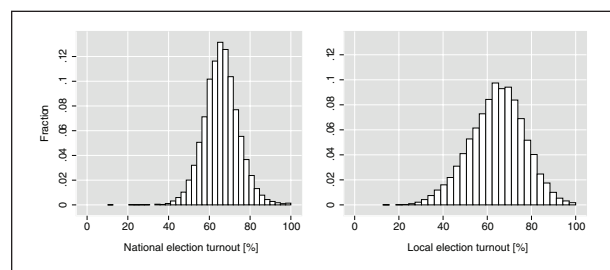
In our empirical analysis, we aimed to explain changes in a municipality's election turnout with reference to the direct democracy events that occurred in the municipality since the previous election. Therefore, we processed all data into a panel dataset that described what happened in each of the 6,250 Czech municipalities in three successive election periods. (1998–2002, 2002–2006, 2006–2010; see Figure 2 for illustration). As many as 163 of these 6,250 municipalities held direct democracy events and were, thus, in the treatment group, while the remaining municipalities formed the control group.

## Dependent and Independent Variables

Two measures of citizen participation in the election process were considered as the dependent variables: (1) turnout in national (parliamentary) elections, and (2) turnout in



**Figure 2.** Timing of direct democracy events and elections; histogram shows quarterly frequencies of direct democracy events, bar code below the histogram marks dates of individual events, and vertical grid lines indicate election dates, that is, demarcate periods in our panel dataset (the periods for local election data slightly differ from those for national elections).



**Figure 3.** Distribution of dependent variables; observations are pooled across years and panels.

local elections. Both dependent variables were expressed as the ratio of ballots cast to the number of eligible voters. For each municipality, we used data from election years 2002, 2006, and 2010 for periods 1, 2, and 3. For a municipality that experienced a direct democracy event, we included election turnout both before and after the direct democracy event in the analysis.<sup>6</sup> Figure 3 shows the distributions of the dependent variables.

The main independent variable was an indicator of the presence of a direct democracy event in the respective interelection period. For example, in a municipality where a referendum was held in 2003 (i.e., in period 2, see Figure 2), the variable took on values 0, 1, and 0 in periods 1, 2, and 3, respectively. Due to our assumption concerning the long-term effects of local direct democracy (H3), we also included a lag of direct democracy indicator. The presence of a lag means that, for example, a 2003 referendum should affect voter turnout not only in the (upcoming) 2006 election but also in the (subsequent) 2010 election; see Figure 1. For this example, the lagged indicator values would be 0, 0, and 1, respectively.

**Table 1.** NIMBY Classification of Referenda and Citizen Initiatives.

	NIMBY	No. of cases
Airport construction	Y	10
Mining site, factory, highway, housing, industrial construction	Y	40
Disposal site (radioactive material)	Y	26
Military base	Y	19
Wind farms	Y	22
Education, culture, nonprofit	N	16
Municipality development, property rights	N	36
Total		169

NIMBY = not-in-my-backyard.

To test H2, H4, and H5, we also consider three variables describing the nature of the direct democracy process. First, we distinguish between referenda and citizen initiatives. Second, we account for campaign competitiveness by means of a variable that indicates direct democracy events with victory margins of 20 percent or less. Finally, we include an indicator of a NIMBY issue on the ballot.

In Table 1, we present the particular issues on the ballot and how we coded NIMBY issues. The first five categories (airport construction, industrial construction, disposal sites, military bases, and wind farms) all involve some environmental threat or significant potential intervention in the life of the local community. These were coded as NIMBY issues. The other two categories include direct democracy events that were concerned neither with environmental threat nor with development projects. These two categories were coded as non-NIMBY.

We considered several confounding factors that could significantly influence the change in citizen participation in the election process between successive rounds of elections. Given the data available, we were able to control for the municipalities' characteristics indicating changes in demographic and socioeconomic conditions, namely, age structure, net migration rate, and unemployment rate. These factors roughly correspond to individual resources linked to socioeconomic status in the socioeconomic status (SES) model (Brady, Verba, and Schlozman 1995), which is mostly based on demographic and socioeconomic indicators. Age structure was measured as the share of a municipality's population in three bands: 18–44, 45–74, and 75+, in each election year; net migration rate and unemployment rate are expressed in terms of the change over the entire interelection period.

We were, of course, not able to account for other factors that could drive political participation, such as social capital (Putnam 2000) or social networks (McClurg

2003). However, we believe that these properties (1) do not change rapidly over time, and (2) may be at least partly captured by (i.e., correlated with) our control variables; therefore, they should not bias the estimates in our regression design (see below).

### Regression Models

Our panel data setting, where municipalities are observed both before and after the direct democracy event, helped us overcome several potential sources of bias. Specifically, we used regression models that eliminated time-constant unobserved heterogeneity, that is, our estimates were unaffected by those municipality characteristics that did not evolve over time. Loosely speaking, this is achieved by considering the changes in election turnout and independent variables in each municipality in periods 1, 2, and 3.

In our selection of a particular functional form of the regression model, we had to take into account the fractional character of our dependent variables, that is, values limited to the interval  $[0, 1]$ . We decided to run two alternative model specifications in parallel, with a simpler linear model being complemented by a more elaborate nonlinear model that directly accounted for the fractional nature of our data.

First, we considered standard panel data linear regression with two-way effects (i.e., both panel- and time-specific). We used two of the usual estimation methods: the fixed-effects estimator (FE) and the first-differencing estimator (FD).<sup>7</sup> We only report results from the FE, which were slightly favored by the criterion based on the Wooldridge (2010, 320) test for serial correlation of FD residuals.

Several alternative nonlinear modeling approaches for a fractional dependent variable exist. In our case, we needed a model that (1) allows the observed fractions to attain the 0/1 bounds (see Figure 3), and (2) is suitable for short panels and accommodates any unobserved heterogeneity correlated with explanatory variables. We chose the fractional probit model proposed by Papke and Wooldridge (2008), which uses the Mundlak (1978) and Chamberlain (1982) approaches to model the distribution of the unobserved effect conditional on observed covariates. The restricted (Mundlak) version of Chamberlain's device was used in our model specification, and our estimation was carried out using the method of generalized estimating equations (GEE). Our short panel setting allowed us to increase estimator efficiency by leaving the variance structure (or "working correlation matrix") in GEE unrestricted, without excessive loss of degrees of freedom. We applied a nonparametric panel bootstrap to obtain robust standard errors for statistical inference.



**Table 2.** Direct Democracy Events: Descriptive Statistics.

Turnout (% , mean, range)	56 (12–97)
Winning share (% , mean, range)	82 (51–100)
Municipality population (median)	624
Initiated by incumbent/citizens (%)	65 / 35
NIMBY/non-NIMBY issue on the ballot (%)	69 / 31
Observations	169

NIMBY = not-in-my-backyard.

A complete Stata code that reproduces our results is available in the supplemental material (see supplemental material on the PRQ website), and contains additional comments about the method and its implementation.

## Results

Rather than including all two hundred direct democracy events that took place between 2000 and 2012 in the analysis, we included only the 163 direct democracy events that took place before the elections in 2010. The general characteristics of these events are given in Table 2.

The results of the regression analysis are presented in Tables 3 and 4, respectively. The analysis proceeded in three steps, differing in the extent of information about the direct democracy events included in the regressions.

In the first step (Model 1), we included only a dummy variable indicating the existence of *any* direct democracy event. This allowed us to test H1. The direct democracy indicator is statistically significant in the case of both forms of political process. The effect is stronger in the case of local elections where a single direct democracy event caused an increase in turnout of 2.5 percentage points (pp). The size of the effect in the case of national elections was about 1.5 pp. Importantly, the effect is significant irrespective of the analytical method used (FE/FP) and is of about the same magnitude in both. The size of the effect corresponds to the sizes of the effects reported by research undertaken in the United States (Tolbert and Smith 2005). The size seems rather small, but as shown by Childers and Binder (2012), the effects of multiple referenda or citizen initiatives are reinforcing; in other words, as the use of direct democracy increases, there is a respective increase in the overall effect on turnout in elections.

The last row in Tables 3 and 4 shows the “within”  $R^2$  from the FE regressions, that is, the fraction of temporal variation in the turnout of individual municipalities that has been explained by independent variables. The difference between the national and local election results is attributable to the fact that local election turnout exhibits higher variation, as seen in Figure 3. The statistical consequence is that the standard errors are larger and confidence intervals wider for local election regressions. This

is important, for example, for the comparison of variable significance between analyses of both types of election.

In the second step (Model 2), we included the lag of direct democracy indicator to allow for a long-term effect on turnout (see Figure 1); this enabled us to test H3. As shown in Table 3, the long-term effect is significant for national elections. While the effect of direct democracy on upcoming national elections was about 1.8 pp, the effect on subsequent national elections was somewhat lower, about 1.4 pp. However, the lagged indicator was positive but not significant in local elections (Table 4, Model 2).

In the third step (Model 3), we took into account additional characteristics of the direct democracy event. In addition to the direct democracy indicator and the lag indicator, we included in the regressions a variable identifying citizen initiatives (H2), an indicator of competitive campaigns (H4), and a variable showing the presence of NIMBY issues on the ballot (H5). These variables enabled us to test the three remaining hypotheses. Their presence, however, changes the interpretation of the coefficient of the general direct democracy indicator: in Model 3, it measures the impact of a non-NIMBY referendum with an uncompetitive campaign on turnout in upcoming local elections.<sup>8</sup> As for the impact on subsequent elections, we do not add lags of these additional direct democracy characteristics to the model. Only the overall long-term effect is measured, as in Model 2. The reason for this is that the long-term effect can only be measured for events from periods 1 and 2, which reduces the number of relevant observations substantially (Figure 2).

Considering first the results for national elections (Table 3, Model 3), the direct democracy indicator is significant. However, effects of all other variables related to the direct democracy event are insignificant and relatively small in magnitude (see Figure 4 for a graphical comparison of effect sizes and their confidence intervals). This implies that any direct democracy event, irrespective of its method of initiation, the issue on the ballot, or campaign competitiveness, has a positive impact on turnout in the upcoming national elections by increasing the turnout by about 2 pp. Therefore, neither competitive campaigns, nor NIMBY issues on the ballot, nor citizen initiatives are the sources of this effect. It is simply the general “institutional” effect of direct democracy.

The results for local elections (Table 4, Model 3) are somewhat blurred by large standard errors, caused by high variations in local election turnout. The coefficient of the direct democracy indicator (i.e., the effect of a non-NIMBY referendum with an uncompetitive campaign on turnout in upcoming local elections) is insignificant. However, its point estimate suggests a positive effect of about 1.4 pp, which seems to be roughly in line with the

**Table 3.** The Effect of DDEs on National Election Turnout.

	Model 1		Model 2		Model 3	
	FE	FP	FE	FP	FE	FP
<b>DDE characteristics (nonlagged)</b>						
DDE indicator (yes/no)	1.629** (0.387)	1.376** (0.372)	1.890** (0.408)	1.662** (0.390)	2.105** (0.717)	1.995** (0.630)
Citizen initiated					0.0658 (0.780)	0.170 (0.680)
Victory margin <20%					-0.559 (1.416)	-1.146 (1.425)
NIMBY					-0.0245 (0.735)	-0.0856 (0.641)
<b>Lagged DDE characteristics</b>						
Lag of DDE indicator			1.431* (0.668)	1.308** (0.632)	1.404* (0.679)	1.316* (0.646)
<b>Municipality characteristics</b>						
Population (logged)	9.593** (0.901)	9.184** (0.914)	9.575** (0.901)	9.168** (0.914)	9.556** (0.901)	9.139** (0.914)
% of population 0–44 years	-0.148** (0.0263)	-0.133** (0.0267)	-0.148** (0.0263)	-0.132** (0.0267)	-0.147** (0.0263)	-0.132** (0.0267)
% of population 75+ years	-0.0720† (0.0415)	-0.0614 (0.0428)	-0.0725† (0.0415)	-0.0619 (0.0428)	-0.0730† (0.0415)	-0.0625 (0.0428)
Unemployment rate (%)	-0.0581** (0.0147)	-0.0513** (0.0144)	-0.0581** (0.0147)	-0.0514** (0.0144)	-0.0579** (0.0147)	-0.0512** (0.0144)
Net migration (per 1,000 inhabitants)	-0.00303 (0.00382)	-0.00247 (0.00384)	-0.00296 (0.00382)	-0.00241 (0.00384)	-0.00288 (0.00382)	-0.00229 (0.00384)
Observations	18,712	18,712	18,712	18,712	18,704	18,704
R <sup>2</sup> (within)	.157		.158		.158	

(1) All regressions included a full set of time dummies. (2) FE = fixed-effects estimator for the linear model specification; FP = fractional probit model; DDE = direct democracy event; NIMBY = not-in-my-backyard. (3) For FP, average partial effects (APE) are reported instead of estimated coefficients. (4) Coefficients, APEs, and standard errors are multiplied by 100 to enhance readability; the changes in the dependent variable are, thus, measured in percentage points. (5) Standard errors of FE coefficients, in parentheses, are made robust to arbitrary heteroskedasticity and serial correlation; standard errors of APEs are obtained from five hundred replications of nonparametric panel bootstrap. (6) The R<sup>2</sup> reported for FE is one from the “within” regression, that is, it shows the proportion of temporal variation within individual municipalities explained by temporal variation in explanatory variables.

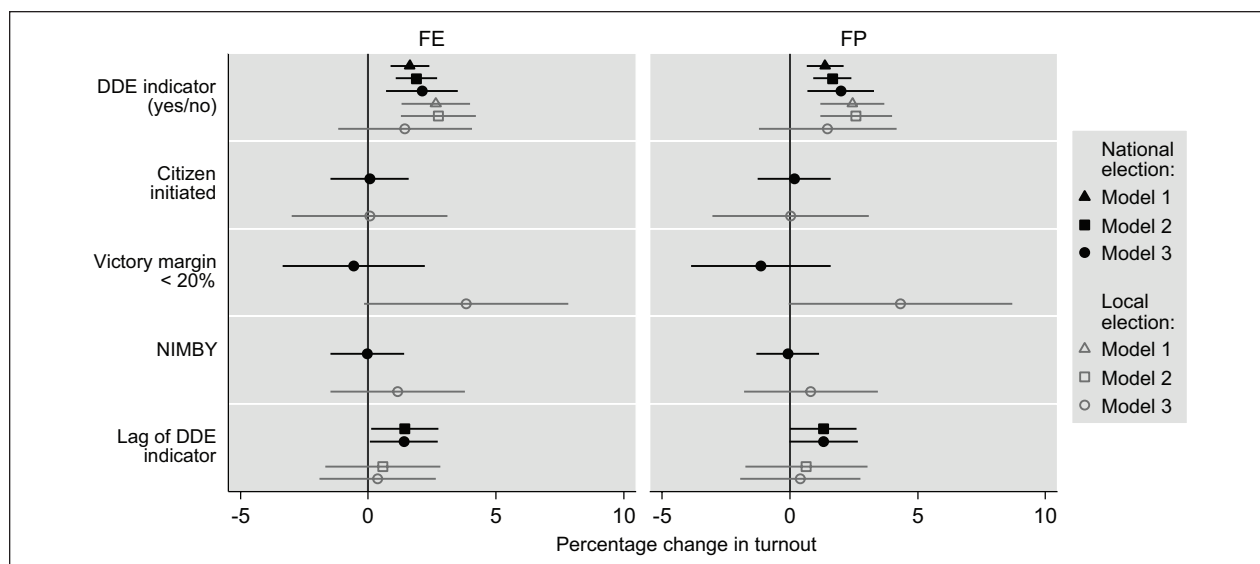
†p < .10. \*p < .05. \*\*p < .01.

**Table 4.** The Effect of DDEs on Local Election Turnout.

	Model 1		Model 2		Model 3	
	FE	FP	FE	FP	FE	FP
DDE characteristics (nonlagged)						
DDE indicator (yes/no)	2.649** (0.682)	2.443** (0.647)	2.762** (0.748)	2.587** (0.717)	1.446 (1.334)	1.481 (1.304)
Citizen initiated					0.0606 (1.556)	0.0260 (1.508)
Victory margin <20%					3.838† (2.037)	4.330* (2.167)
NIMBY					1.154 (1.345)	0.820 (1.326)
Lagged DDE characteristics						
Lag of DDE indicator			0.577 (1.146)	0.643 (1.095)	0.368 (1.163)	0.409 (1.116)
Municipality characteristics						
Population (logged)	2.063 (1.356)	2.246 (1.398)	2.054 (1.357)	2.234 (1.399)	2.030 (1.358)	2.212 (1.400)
% of population 0–44 years	-0.0639** (0.0216)	-0.0666** (0.0225)	-0.0640** (0.0216)	-0.0667** (0.0225)	-0.0634** (0.0216)	-0.0657** (0.0225)
% of population 75+ years	-0.00912 (0.00567)	-0.00937 (0.00588)	-0.00909 (0.00567)	-0.00934 (0.00588)	-0.00900 (0.00567)	-0.00914 (0.00589)
Unemployment rate (%)	-0.0585 (0.0373)	-0.0687† (0.0401)	-0.0583 (0.0373)	-0.0684† (0.0401)	-0.0583 (0.0373)	-0.0692† (0.0401)
Net migration (per 1,000 inhabitants)	-0.0387 (0.0593)	-0.0477 (0.0652)	-0.0388 (0.0593)	-0.0479 (0.0652)	-0.0375 (0.0593)	-0.0477 (0.0652)
Observations	18,624	18,624	18,624	18,624	18,615	18,615
R <sup>2</sup> (within)	.051		.051		.051	

(1) All regressions included a full set of time dummies. (2) FE = fixed-effects estimator for the linear model specification; FP = fractional probit model; DDE = direct democracy event; NIMBY = not-in-my-backyard. (3) For FP, average partial effects (APE) are reported instead of estimated coefficients. (4) Coefficients, APEs, and standard errors are multiplied by 100 to enhance readability; the changes in the dependent variable are, thus, measured in percentage points. (5) Standard errors of FE coefficients, in parentheses, are made robust to arbitrary heteroskedasticity and serial correlation; standard errors of APEs are obtained from five hundred replications of nonparametric panel bootstrap. (6) The R<sup>2</sup> reported for FE is from the “within” regression, that is, it shows the proportion of temporal variation within individual municipalities explained by temporal variation in explanatory variables.

†p < .10. \*p < .05. \*\*p < .01.



**Figure 4.** The effect of direct democracy events on election turnout: predicted percentage changes in turnout and their 95% confidence intervals.

FE = fixed effects; FP = fractional probit; DDE = direct democracy event.

results of Models 1 and 2. Among the additional event characteristics, it is the campaign competitiveness that stands out in terms of both effect size and significance. Events with competitive campaigns cause a boost in turnout in upcoming local elections by an additional 4 pp, compared with events with uncompetitive campaigns (see Figure 4). Note that the coefficients on event characteristics can be combined to give the estimated total effect of a particular type of event: for example, non-NIMBY referenda with uncompetitive campaigns increase turnout by 1.4 pp, non-NIMBY citizen initiatives with uncompetitive campaigns increase turnout by 1.5 pp, NIMBY referenda with uncompetitive campaigns increase turnout by 2.6 pp, non-NIMBY referenda with competitive campaigns increase turnout by 5.3 pp, and so on.

## Discussion

Overall, the results show that local direct democracy in Czech municipalities increases turnout in both national and local elections. These findings show that, unlike in Switzerland, direct democracy does not induce voter fatigue leading to decreased political engagement.

In addition, the positive effect is not confined to just one form of political process. Direct democracy has a broad positive effect on political participation. This finding supports H1 that direct democracy should have a positive effect on political engagement in various forms of political processes.

Second, we tested H2 that citizen initiatives should have a greater effect on subsequent political engagement

than referenda initiated by local government authorities. We found no evidence supporting this hypothesis.

Third, we found mixed evidence for H3, which argues that the effect of direct democracy should be long term. We hypothesized that direct democracy could increase turnout in the two election cycles that followed the direct democracy event (i.e., the immediately upcoming election, and the one following). We found positive evidence in favor of this hypothesis, albeit only for the case of national elections. For national elections, the lagged effect was slightly lower than the immediate one, suggesting that the positive effect weakens over time.

For local elections, the effect is positive but statistically insignificant. Why is this the case? We think these results are an effect of the limited number of observations and large standard errors (see Table 4, column 2) that blur the results by suppressing the significance of the effect. These high standard errors stem from the high variance of the local elections variable, and have two sources. First, turnout in local elections has a generally greater variance than in national elections because it is strongly influenced by contextual factors, while individual factors (based on SES), which are key to political participation at a national level, play a lesser role (Baybeck 2014, 136). In addition, local political participation in the Czech Republic is unstable because municipalities are small, without established party structure and subject to rather random mobilization driven by external threats and conflicts, which result in great differences in political participation both between and within municipalities over time (Müller, Fleissner, and Kný 2015).

Moreover, comparing the confidence intervals for the lagged effects in national elections and the lagged effect in local elections (Figure 4), we can see that the two confidence intervals largely overlap, suggesting similar results. Therefore, we feel it is premature to conclude that the long-term effect for local elections is nonexistent; rather, we regard the results as inconclusive, with more observations needed to settle the issue.

H1 to H3 were intended to test the tenets of the participatory hypothesis, and the institutional effects of direct democracy. The fact that direct democracy increased turnout in both types of elections and had a long-term effect on turnout in national elections gives some support to the participatory hypothesis. However, the long-term effect was not confirmed in the case of local elections, and citizen initiatives were found not to increase turnout more than incumbent-initiated referenda. In sum, we found some, but no strong evidence for the participatory model. Rather than showing support for the participatory theory specifically, the findings rather show a general effect of direct democracy on turnout in elections. Direct democracy produces a general long-term positive effect on turnout, but the evidence that links this to participatory theory, in particular, is not strong.

We could not test the hypothesis that the positive effect on turnout is caused by social issues (Biggers 2011) due to the fact that such issues cannot be placed on the ballot in the Czech Republic. Nonetheless, inspired by this idea, we inquired whether direct democracy events, held in response to developmental projects, could have this effect (H5). The existing research shows that NIMBY problems are often associated with local conflicts, citizen mobilization, and strong emotional responses (Devine-Wright 2014). However, this hypothesis was not confirmed.

Finally, we also tested whether competitive campaigns are the sources of the positive effect on turnout (H4). Inspired by the findings of Childers and Binder (2012), we tested whether it was direct democracy events with competitive campaigns that increased turnout in upcoming elections. This was not confirmed for the case of national elections. However, we found a relatively strong effect in the case of local elections, which accounted for as much as 4 pp.

The results suggest that there is some support for both the participatory/institutional and the campaign competitiveness hypotheses. Based on empirical evidence, we argue that local direct democracy has two effects on electoral turnout.

Local direct democracy increases turnout not only in upcoming national and local elections but also in subsequent national elections. Although the long-term effect weakened over time, it lasted more than one election cycle and increased turnout in two successive national elections. The positive effect is general and applies to all

direct democracy events irrespective of their characteristics. These findings suggest that there is a small but positive general effect of direct democracy.

Moreover, in upcoming local elections, there was also an additional effect that boosted the turnout: if a competitive campaign was seen in a direct democracy event, turnout in upcoming local elections increased substantially. When local direct democracy races are close, it brings about mobilization of the community, which has a positive effect on turnout in the upcoming local elections.

## Confounding Factors and Endogeneity

The results of the analysis show that local direct democracy in the Czech Republic has a positive effect on turnout in elections. However, even though we control for many characteristics of the analyzed municipalities, the analysis may suffer from the endogeneity problem. We consider several issues related to this problem.

First, research from the United States shows that those states that employ the ballot initiative process have higher turnout rates in elections. However, there might be a common cause, such as political culture, that gives rise both to higher political engagement and to direct democracy. These states would, therefore, have a higher electoral turnout even if direct democracy was not adopted there.

This concern could also be raised in the case of Czech local democracy. The municipalities where local direct democracy was used could systematically differ due to some unobserved variable that could generate higher turnout. However, because the first direct democracy events in the history of the Czech Republic were organized only after the year 2000 and because for each municipality, we compare the levels of electoral turnout before and after the use of direct democracy, the potentially spurious effect of contextual unobserved variables (such as political culture, etc.) is excluded.

Second, there could be a kind of selection bias related to municipality size, because local direct democracy can take place in municipalities only of a specific size. However, the distribution of municipalities with respect to size of population was similar for those with and without direct democracy processes. In addition, control for municipality size was included in the regression models (Tables 3 and 4).

Third, another type of confounding factor could be an event that gave rise both to direct democracy as well as increased turnout in local and national elections. Both increased turnout and local direct democracy might be a consequence of conflict within a municipality. This conflict might energize the local community and lead to direct democracy as well as increases in political

engagement. The real cause of the increased turnout could be the underlying conflict, and local direct democracy could only be a side effect. Laisney (2012), referring to the example of local politics in the United Kingdom, showed that local direct democracy is sometimes used as a weapon in municipality conflicts.

It is impossible with the existing data to shed light on the exact casual mechanism of how local direct democracy enhances political engagement. It is very likely that direct democracy is related in some way to political decision-making in a municipality (e.g., conflicts, stalemates, important decisions needing public legitimation). The existing research on direct democracy argues that its key function is that it enables collective action, integrates voters' preferences into the political process, and channels and civilizes existing and emerging conflicts. In other words, it serves the function of a political opportunity structure (Fatke and Freitag 2013, 254). Rather than viewing the increase in political engagement as caused solely by local direct democracy, it is more likely that the actual cause is an intertwined effect of both underlying issues/conflicts and direct democracy processes and campaigning. However, this is a hypothesis that should be confirmed by future research.

## Conclusion

This paper contributes to the debate on the effect of direct democracy on political participation in several ways.

First, the main aim of this paper was to test the hypothesis that local direct democracy in the Czech Republic leads to increased turnout in elections. We provide solid empirical evidence that, compared with the United States and Switzerland, this effect holds. Unlike in Switzerland, direct democracy in the Czech Republic does not cause voter fatigue but leads instead to enhanced electoral turnout.

Second, we provide some support for the general institutional effects of local direct democracy by showing that it not only has a positive effect on turnout in both the considered forms of political process (i.e., national and local elections), but also that, in the case of national elections, the effect is long term and lasts longer than one election cycle. However, we also found support for the campaign competitiveness hypothesis. When the campaign surrounding the direct democracy event was competitive, there was a strong effect on turnout in the immediately upcoming local elections.

In summary, in the case of Czech local direct democracy, it is the combination of a fairly small long-term institutional effect and a much stronger mobilization effect of competitive campaigns that are the sources of the positive effect of direct democracy on turnout in elections.

Finally, we point out that local direct democracy and increased turnout in elections could be both a consequence and a manifestation of community conflicts. Enhanced political engagement could be a result of direct democracy both intensifying and channeling disputes within municipalities. However, it is impossible with existing data to identify the exact mechanism of how these factors are causally intertwined. Further research based on qualitative case studies is needed to clarify the relationship between community conflict, direct democracy, and increased electoral turnout.

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## Notes

1. But see Keele (2009), who challenged the consensus, arguing that the effect is generally just an artifact of improper statistical analysis and design.
2. This hypothesis reflects the fact that the U.S. research has demonstrated a different effect of direct democracy in mid-term compared with presidential elections.
3. Although Childers and Binder (2012) emphasize competitive campaigns in citizen initiatives, we first test whether this effect relates to campaign competitiveness in general and later focus also on whether it is related to citizen- or incumbent-initiated direct democracy events.
4. Only issues that are within the authority of the given municipality can be placed on the ballot.
5. Required number of signatures: 30 percent (up to three thousand inhabitants), 20 percent (up to twenty thousand), 10 percent (two hundred thousand), 6 percent (more than two hundred thousand).
6. With the exception of three municipalities where the direct democracy event occurred in period 1 (see Figure 2).
7. We also considered the random-effects estimator, even though we did not expect its additional assumptions to hold; this expectation was confirmed by the results of the

Hausman test in all our alternative model specifications, leading us to discard the random-effects model.

8. The coefficient of *DDE indicator* in Model 3 (Tables 3 and 4) measures the effect of a direct democracy event (DDE) that scores zeros in all additional event characteristics, namely, *Citizen initiated*, *Victory margin <20%* and *not-in-my-backyard (NIMBY)*. Supposedly, this type of a direct democracy event has the lowest impact on election turnout, making it a suitable reference category.

## Supplemental Material

Replication data for this article is available with the manuscript on the PRQ website.

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