A quest for the pivotal voter

"Saying that closeness increases the probability of being pivotal ... is like saying that tall men are more likely than short men to bump their heads on the moon" (Schwartz, 1987, p.118)

This study aims at contributing to the literature on the effect of political competition on turnout. The theoretical foundation of the causal link between election closeness and turnout goes back as far as Downs (1957). He was the first to suggest that voting decision reflects a rational calculation of expected utilities depending on the voting decision. In the classic framework developed further by Riker and Odershook, (1968) the underlying cost and benefits associated with voting is described as the following

$$R = PB - C + D \quad (1)$$

where R is the expected utility of voting, P is the probability of casting a decisive vote, B is the benefit of the preferred candidate being the winner, C is the costs of voting and D is the utility of voting regardless of the outcome.

This study focuses on the term P: that is we would like to find out if the *ex ante* probability of casting a decisive vote increases the probability of turnout. This hypothesis (often referred to as the Downsian Closeness Hypothesis) rests on two insights. First, the voters should be more likely to go to the ballots when they think they have more chance to influence the results (i.e. they have more chance to cast the decisive vote). Second, if the race is expected to be close, politicians and parties may find it reasonable to put more effort into mobilizing voters (e.g. Cox and Munger 1988).

A briefing of existing empirical studies

The Downsian Closeness Hypothesis has attracted a great attention among empirical researchers of political science. Scholars used two approaches: the less voluminous one aimed at linking survey responses about turnout on characteristics of the corresponding elections (such as Matsusaka and Palda, 1998). The second approach uses aggregate data on elections and examines the link between closeness and turnout.

The results of the empirical studies have been quite mixed. Mueller (2003) lists more than 50 papers and shows parameter estimates of proxies of closeness. These estimates vary a

lot both in terms of magnitude and significance. As the body of empirical literature on this issues is immense we do not give a detailed description (throughout reviews of the literature can be found in (Blais, 2000; Matsusaka & Palda, 1993; Endersby et al., 2002).

Besides mixed results some concerns about the validity of empirical methods make the picture unclear. First, as pointed out by Cox (1988) the use of percentage difference between the winner and the loser party is methodologically flawed: this proxy for closeness can be shown to be spuriously correlated by turnout by construction. Cox suggests the use of raw difference in vote is more appropriate. On the other hand as Fauvelle-Aymar and Francois (2006) point out using percentage margins make it difficult to assess the impact of the size of the electorate.

Second, the use of *ex post* election results to proxy *ex ante* expectations about the closeness of the race makes a strong case for endogeneity. That is the left hand side variable (the closeness of the election) may be jointly determined with the right hand side variable (turnout). To tackle this problem we follow the empirical strategy of Fauvelle-Aymar and Francois (2006) who proxy expectations about closeness of run-off elections with the results of first-round elections in the same constituencies.

The legislative elections in Hungary 2002 and 2006

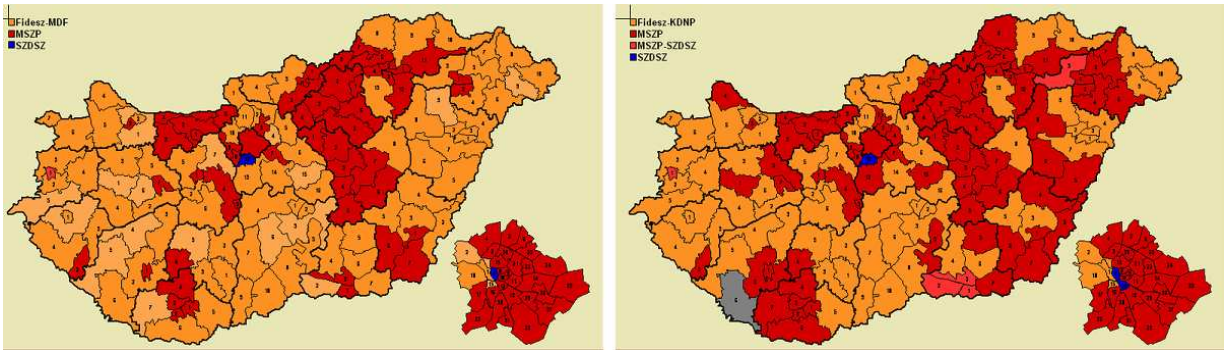
In this study we use two consequent elections taking part in Hungary in 2002 and 2006. The advantage of this is twofold. First, Hungary has a two stage electoral system: the strategy suggested by Fauvelle-Aymar and Francois (2006) can be used. Second, using panel data on two elections (more precisely two round each election year) make it easier to tackle problems caused by omitted variables.

We chose the elections of 2002 and 2006 because of their similarity in many aspects. First, party structure was the same: the two large parties Fidesz and MSZP were competing to win the elections. Two other parties, MDF and SZDSZ were allied respectively with the former two. More precisely, in 2002 Fidesz and MDF appointed common candidates in most of the constituencies while SZDSZ and MSZP candidates (who formed the governing coalition after the election) stepped back in favor of each other in the second round. In 2006 Fidesz and MDF, as well as SZDSZ and MSZP stepped back in favor of each other in the second round in most of the constituencies.

In short, in the second round only the candidates of the two major parties (or party alliances) had any chance to win. That is, the expected closeness of the election can well be thought of

as the difference in the votes candidates of the two large parties got in the first round. Results of the two elections are shown it figure 1 (regarding constituencies).

Figure 1: Election results in 2002 and 2006



Data and measurement

The data was downloaded from a website (www.vokscentrum.hu) which collects data on Hungarian elections. The dataset contains constituency level information of elections taking part after 1989. We used information on number of eligible voters, number of valid votes and the number of votes cast for the major parties in the two rounds of the two elections. Below, we describe how our variables were constructed from the data.

Turnout is defined as the ratio of the number of valid votes and the number of eligible voters in a constituency. This measure was preferred to the number of votes as it corresponds to the probability of voting in the individual level.

Closeness is more problematic. First, it is ambiguous which parties to compare in terms of the number of votes. As we have mentioned above, in the second round in both 2002 and 2006 a vast majority of the constituencies was won by either Fidesz or MSZP. Exceptions are one independent victory in 2006 and a couple of step-backs in favor of SZDSZ by MSZP. Thus, we define closeness as the raw difference between votes cast to the two parties who gained the most votes in the first round.

We publish the descriptive statistics of the variables we used in the analysis for the two elections below.

Table 1A: Description of variables (2002)

Variable	Observations	Mean	Deviation	Minimum	Maximum
Eligible voters	176	45717	7883	27073	67092
Valid votes (first round)	176	30703	6191	17772	48503
Valid votes (second round)	110	29447	6105	17539	45209
Turnout (first round)	176	67,03%	5,28%	52,82%	82,36%
Turnout (second round)	110	63,95%	5,07%	54,21%	78,99%
Absolut margin (second round)	176	3529	2672	10	10229
Relative margin (second round)	176	7,77%	5,79%	0,02%	23,18%

Table 1B: Description of variables (2006)

Variable	Observations	Mean	Deviation	Minimum	Maximum
Eligible voters	176	45717	7883	27073	67092
Valid votes (first round)	176	30703	6191	17772	48503
Valid votes (second round)	110	29447	6105	17539	45209
Turnout (first round)	176	67,03%	5,28%	52,82%	82,36%
Turnout (second round)	110	63,95%	5,07%	54,21%	78,99%
Absolut margin (second round)	176	3529	2672	10	10229
Relative margin (second round)	176	7,77%	5,79%	0,02%	23,18%

Econometric specification

We follow the specification suggested by Fauvelle-Aymar and Francois (2006). We start with the following equation:

$$\text{Turnout}_{i,t} = \alpha_i + \beta \text{Closeness}_{i,t} + \gamma \text{Size}_{i,t} + \delta \text{Turnout first round}_{i,t} + \varepsilon_{i,t} \qquad (2)$$

Index *i* denotes constituencies and *t*=1,2 denotes which year the election took place. The fixed effect α_i absorbs every time invariant effects. As compared to Fauvelle-Aymar and Francois (2006) we do not include campaign expenditures (to our knowledge no such data exist for Hungarian elections), but we include turnout in the first round. The estimating the effects on the *differential turnout* in the second round as compared two the first allows for controlling for costs of voting.

To get rid of unobserved but time invariant heterogeneity among constituencies, we estimate (1) in first differences (FD). FD estimation is preferred to fixed effects estimation as we do not want to make strict assumptions on serial correlation and also because there are only two periods. The FD equation to estimate is calculated by subtracting the equation (2) for the year 2002 from the equation for 2006:

$$\Delta \text{Turnout}_{i,t} = \alpha + \beta \Delta \text{Closeness}_{i,t} + \gamma \Delta \text{Size}_{i,t} + \delta \Delta \text{Turnout first round}_{i,t} + \Delta \varepsilon_{i,t} \qquad (3)$$

Note that α_i cancels out as it does not vary among the two periods. Using first differenced variables we can estimate our transformed equation by simple OLS.

Estimation results

We estimated two specifications. In the first, the measure of closeness is the absolute margin between the two large parties and in the second we calculated with percentage differences. Though the magnitude of the two estimates is hard to compare the effect of closeness is negative and significant in both columns.

In line with theory (but contrary to most of the earlier studies) the effect of the size of the electorate is found to be negative and significant as well. That is, holding other factors fixed, in smaller constituencies had higher turnout.

Table 2: The effect of closeness on turnout

Dependent variable: Turnout 2nd round		
Absolute margin	-0.00469***	
	[-3.797]	
Turnout 1st round	0.800***	0.815***
	[7.559]	[7.706]
Eligible voters	-0.00239**	-0.00263**
	[-2.361]	[-2.611]
Relative margin		-0.228***
		[-3.978]
Constant	-0.0796***	-0.0793***
	[-27.25]	[-27.27]
Observations	103	103
R-squared	0.397	0.404

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

A further check to the appropriateness of the method is to estimate the basic equation for the two elections separately. We publish these results in table 2. The results are qualitatively similar for the two years. Also they show a similar picture to the panel results the only difference being the insignificance of the size of the electorate.

Table 2: The effect of closeness on turnout (2002 & 2006)

Dependent variable: Turnout 2nd round		
Absolute margin	-0.00441***	-0.00339***
	[-5.194]	[-3.267]
Turnout 1st round	0.704***	0.890***
	[26.12]	[28.53]
Eligible voters	0.000129	-0.000348*
	[0.581]	[-1.768]
Constant	0.248***	0.0617***
	[12.60]	[2.869]
Observations	131	110
R-squared	0.848	0.890

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Conclusion

This study presents some results consistent with the Downsian Closeness Hypothesis. Contrary to some previous research we found that the expected closeness of an election has a significantly positive impact on turnout. Following Fauvelle-Aymar and Francois (2006) we proxied expectations about closeness with first round election results in the general elections in Hungary in 2002 and 2006. As compared to previous studies ours has the virtue of using panel aggregate data enabling us to estimate causal effects .

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