**REGULATING DISINFORMATION:
POLL EMBARGO AND ELECTORAL COORDINATION**

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[Word count: 6286]

Running header: Poll embargo and electoral coordination

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b. Acknowledgements

* The authors thank André Blais, Claire Durand, Jeffrey Karp, José Ramón Montero, and Guillem Rico for their helpful comments.

c. Funding disclosure

This study is part of the *Making Electoral Democracy Work project*, see Blais (2010) and <http://electoraldemocracy.com>. The authors acknowledge financial support from the Spanish Ministry of Science and Innovation, research project CSO2010-1639.

d. Conflict of interest

The authors acknowledge no conflict of interest.

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ABSTRACT

This article examines the political consequences of pre-Election Day poll restrictions. Our argument is that laws forbidding the publication of polling results hamper voters' electoral coordination when the information environment is more complex. We rely on aggregated data from elections in 46 democracies to show that the amount of wasted votes increases in countries with highly fragmented party systems when pre-Election Day polls are restricted. This evidence is supported with individual data from Internet surveys conducted by the *Making Electoral Democracy Work Project* during election campaigns in Canada and Spain.

Key Words: Coordination, Elections, Embargo, Polls, Wasted Votes.

Introduction

Mass elections in democracies are coordination games in which voters desert hopeless parties or candidates (Cox 1997). In order to coordinate their actions, common and public expectations about the projected success of parties in the upcoming election are crucial for voters. Polls published in the mass media before the election are a crucial source for obtaining the information about the relative chances of actual and potential competitors.

Despite the important role of polls, many countries outlaw the publication of polling results during some portion of the campaign. According to the worldwide data compiled by Chung (2012), a total of 38 out of 83 countries (46 percent) reported the existence of a blackout period for pre-election opinion polls, during which polling results may not be released to the public. Interestingly, pre-Election Day poll restriction is more widespread in PR (or multiparty systems) than in single-member, simple plurality systems. Whereas there is some kind of limitation on publishing polls before the Election Day in only 6 of the 23 countries (26.1 percent) using majoritarian systems in Chung's sample, in countries using PR and Mixed-Member Systems, the percentage is significantly higher, 52.5 and 56.3 percent, respectively.

In this paper, we argue that the prohibition on pre-Election Day polls deliberately generates informational failures which lead to coordination failures. When polls are absent, information about which parties or candidates are ahead will be unclear and then voters will have less accurate expectations about the various parties' chances of winning. If coordination fails, vote dispersion across competitors will increase, including those parties not seriously in the running for seats. The expected consequence

of information failures in elections is, therefore, an increase in the amount of wasted votes. The impact of a poll embargo should be particularly important in multiparty systems: the higher the number of parties, the greater the information demands from the voters. In general terms, coordination failures affect the functioning of democracies, particularly the quality of representation, the maintenance of dominant parties, and the politics of realignment (Cox 1997).

Relying on aggregated data from the most recent Lower House elections in 46 democracies, we show that the amount of wasted votes –the standard variable to measure electoral coordination– increases in highly fragmented party systems when there are laws outlawing the publication of polling results. In other words, a poll embargo prior to Election Day makes a difference the more complex the information environment is. Individual data from Internet panel surveys conducted by the *Making Electoral Democracy Work Project* (MEDW) during election campaigns in Canada and Spain show that the accuracy of voters' perceptions of the parties' chances of winning are driven by the availability of pre-Election Day polls.

The rest of the article proceeds as follows: The second section presents the normative discussion about poll embargoes and the arguments explaining why and how voters' expectations and coordination are affected by blackout periods on the publication of polls. The following section describes the data and methods used, the results of the empirical analysis using aggregated data, and an individual-level data analysis of the causal mechanisms driving the relationship between poll restriction and electoral coordination. The final section concludes and discusses the normative implications of our findings.

Arguments

The prohibitions on polls before the Election Day create a discussion with relevant normative and empirical implications for the functioning of democracies. Broadly speaking, there are two reasons against unrestricted opinion polling during an electoral campaign. First, poll results are sometimes wrong and therefore misleading (occasionally deliberately so), and second, results about a party or candidate's standing in public opinion might influence the election outcome (Donsbach 2000, 246). This supposed undue influence of polls is nicely presented in the Canadian Supreme Court's decision in the *Thomson Newspapers Co. v. Canada (Attorney General)* in 1998: "The three-day blackout period on the publication of polls will serve, to some degree, the purpose of preventing the use of inaccurate polls by voters by giving critics the opportunity to assess the methodological information made available by the pollster and to question the validity of the poll on that basis (...) Each citizen, no matter how politically knowledgeable one may be, has his or her own reasons to vote for a particular candidate and the value of any of these reasons should not be undermined by misinformation".¹

On the other hand, following Donsbach (2001) –see also Donsbach and Hartung 2008 and Donsbach 2014– three different levels can be distinguished when presenting arguments in favor of unrestricted polling. First, in legal terms, a ban on pre-election polls concerns the freedom of scientific endeavor of the polling institute, the economic freedom of the polling organization, the freedom of the press, and the freedom of information for the public. Second, for the theory of democracy, election polls and

¹ Available at <http://scc-csc.lexum.com/decisia-scc-csc/scc-csc/scc-csc/en/item/1621/index.do> [last accessed September 10, 2014].

forecasts are a source of information available to and desired by voters in democracies that should not be withheld from them. Prohibition of pre-election polls creates privileges for political parties or for other influential groups. Finally, in social science discourse, the inconclusiveness of the knowledge of the effects of pre-election polls and their harmlessness can be put forth. These arguments can be found in the Manila Supreme Court's decision in the Philippines in the Social Weather Stations and the newspaper Manila Standard vs Commission on Elections. In 2001, the Court declared as unconstitutional an election survey publication ban in the following terms: "To sustain the ban on survey results would sanction the censorship of all speaking by candidates in an election on the ground that the usual bombasts and hyperbolic claims made during the campaign can confuse the voters and thus debase the electoral process (...) while survey organizations who employ scientific methods and engage personnel trained in the social sciences to determine socio-political trends, are barred from publishing their results within the specified periods, any two-bit scribbler masquerading as a legitimate journalist can write about the purported strong showing of his candidate without any prohibition or restraint."²

The normative implications of a poll embargo are, however, only one side of the coin. We argue that polls are very useful tools for voters' coordination in mass elections. As the bandwagon and the underdog effects on strategic voting show, voters take into account not only their preferences when voting, but also the expected results of parties or candidates entering the race. The information about the distribution of voter preferences in the electorate is publicly generated mainly through the publication of

²Available at <http://www.sws.org.ph/pr050901.htm> [last accessed September 10, 2014]. See also Mangahas et al. (2001, 9).

polling results in the mass media before the Election Day. As shown in the laboratory setting, pre-Election Day polls are an effective public coordinating signal that results in ‘correct’ voting –choosing the candidate who best represents a voter’s interest– even when voters are relatively uninformed about candidate platform positions (Sinclair and Plott 2012, 84; see also McKelvey and Ordeshook, 1985).

When polls during the campaign are prohibited, voters’ expectations are less clear and coordinated than when they are not. In a recent study, Guinjoan et al. (2014) found that voters look to the future much more than to the past when forming their electoral expectations. Consequently, a poll embargo deliberately generates an informational failure when predicting election results which hampers voters’ electoral coordination. By affecting voter’s expectations about the outcome of the election, polls also affect the vote (Blais et al. 2006, 263). Coordination failures should then be more likely in countries where polls are prohibited.

However, the impact of pre-Election Day poll restriction on expectations or coordination might differ depending on the complexity of the information environment. Our hypothesis is that voters’ strategic considerations are more affected by a poll embargo prior to Election Day in PR or multiparty systems than in single-member, simple plurality systems. Relying on experiments that mimic the ongoing flow of information during a campaign, Lau and Redlawsk (2001) find that viability heuristic (i.e., polls) is employed by almost all voters and it is more likely to be used when the vote choice scenario facing voters is complex.

Clearly, the information environment in PR or multiparty systems is more complex than in single-member, simple plurality systems: voters require much more information to become confident that a given party is really out of the running in the former. First, the conventional wisdom argues that as parties proliferate, the information demands on the voters go up (Gordon and Segura 1997). This means that the greater the number of parties, the more information a voter needs to determine who is and is not viable. As can be seen in American primary elections, when there is a bewildering array of candidates, viability becomes paramount (Brady et al. 2006, 11). While there is only one race in single-member, simple plurality systems, under PR there are many seats and thus several contests going on at the same time. Second, high district magnitudes require more precise estimates of viability as the gap between votes received by viable and unviable parties narrows (Crisp et al. 2012, 144). As Cox and Shugart (1996, 308) put it, “since a given vote percentage means more, in terms of a chance at a seat, as district magnitude increases, a voter requires more information to become confident that a given party is really out of the running as district magnitude increases”. Therefore, it is more difficult distinguishing *ex ante* between winners and losers in PR than in single-member simple-plurality systems. Finally, according to the conventional wisdom (Norris 2002; Franklin 2004), elections are more competitive under PR than under single-member, simple plurality systems. Therefore, uncertainty about the outcome of the election is greater in PR elections.

In sum, there are good reasons to expect that information from polls should play a more important role in PR or multiparty systems to distinguish between strong and weak parties. That is, coordination should be particularly difficult in multiparty systems in which no polls are available.

Empirical analysis

Testing our argument about the consequences of pre-Election Day poll restriction requires empirical evidence showing the coordination and the informational failures when polls are not available. The proxy for the coordination failure will be the amount of wasted votes measured at the national level, while the informational failure will be captured with individual data about the accuracy of voters' perceptions of the various parties' chances of winning seats.³

Aggregated-level analysis

In the aggregated empirical analysis, we test whether poll embargo affects coordination in the last Lower-House election held in a sample of 46 democracies. There have been two criteria for selecting countries and elections. First, the data are dependent on the availability of information about the number of days (prior to an election) of polls banned in the dataset compiled by Chung (2012) and, second, the

³ Several methodological reasons explain using different dependent variables in the two levels of analysis. On the one hand, expectations are very difficult to be studied with aggregated data in cross-national studies. Perceptions of the parties' chances of winning have to be measured at the individual level and they are not very frequently included in surveys. On the other hand, using voting behavior as the dependent variable with panel data collected during the election campaign is very problematic: (i) when asked about their party choice, many respondents during the election campaign opt for the 'DK/NA'. Hence the sample size for the analyses dramatically drops; (ii) for those who declare their voting intention during the campaign, the information is not entirely reliable for many of them given that they change their party choice as a result of the campaign; (iii) if we simply focus on the party choice declared in the post-election survey, many respondents are not considered in the analysis given that the sample is smaller in the post-election survey than in the pre-election one; and (iv) we know that in post-election surveys, voting and supporters of the winner are over-reported and this behavior would affect the analysis if the dependent variable is voting behavior.

elections must be democratic. An election is deemed to be democratic when and where the country is considered as 'Free' by Freedom House.⁴

The dependent variable is the percentage of wasted votes (i.e., votes for parties that did not obtain parliamentary representation) at the national level in the last parliamentary election held in every country. Wasted votes are a standard variable used to capture electoral coordination (Anckar 1997; Tavits and Annus 2006; Crisp et al. 2012; Lago and Martínez 2012). We focus on the national level instead of individual districts for two reasons⁵. First, vote wasting is a problematic concept when comparing local races in multimember and single-member districts. In the latter, there is only one winner per district and all votes not cast for the winner are wasted, even when at least the first loser is a viable competitor (Tavits and Annus 2006, 76). Second, information about seat allocations and support obtained at the level used by the electoral system to pool votes is not available for many countries, particularly for new democracies (see Crisp et al. 2012).

We have several sources for the electoral results: the European Election Database⁶, the website Election Resources on the Internet⁷, Adam Carr's Election

⁴ Available on-line at <http://www.freedomhouse.org>.

⁵ In mixed-member electoral systems parties are considered to obtain parliamentary representation if they win seats in the upper or the lower tiers, but not necessarily in both. Following Ferrara and Herron (2005), when voters have two votes, the amount of wasted votes are calculated according to the results in the lower tier. In run-off systems we focus on the second round.

⁶ Available on-line at http://www.nsd.uib.no/european_election_database/.

⁷ Available at <http://electionresources.org>.

Archive⁸ and the respective Electoral Commissions.

The key independent variables are poll embargo and party-system fragmentation. Pre-Election Day poll restriction has been operationalized as the *Number of Days of Poll Embargo* prior the Election Day. The value 0 means that there is no blackout period on the publication of polls (for instance in Australia, Finland, Japan or South Africa). When there is pre-Election Day poll restriction, the variable goes from 1 (i.e., limitation to release polls applies only for the Election Day) in Norway or Portugal to 21 in South Korea. The source is Chung (2012). Party-system fragmentation is captured with the *Effective Number of Electoral Parties (ENEP)* by Laakso and Taagepera's (1979).

We control for three standard variables affecting the amount of wasted votes:

- The *National Legal Threshold* (i.e., the minimum percentage of votes that a party must receive at the national level to participate in the distribution of seats).
- The *Percentage of Upper Seats* (i.e., the percentage of all assembly seats allocated in the upper tier of the polity). It ranges from 0 for electoral systems without upper tiers to a maximum of 87 percent in Bulgaria. According to Ferrara and Herron (2005: 21), coordination decreases in single-member districts where the corresponding PR district magnitude is higher.
- The *Age of Democracy* captures the time (in years) since the country

⁸ Available on-line at <http://psephos.adam-carr.net/>.

has been democratic. A country is deemed to be democratic when it obtains a score of at least 6 in the Polity IV database.⁹ We have calculated the inverse of the variable to account for a non-linear relationship (Tavits and Annus 2006).

The descriptive statistics are displayed in Table 1.

[INSERT TABLE 1 ABOUT HERE]

In the analysis of the determinants of wasted votes in our sample of 46 countries, we have run three specifications: a first model with only variables pertaining to the electoral and party systems; an additive model in which all variables are included; and finally, an interactive model in which *ENEP*# of Days of Poll Embargo* is added to the previous specification. Estimation is by OLS with robust standard errors.¹⁰ The results are displayed in Table 2.

The first model explains about 22 percent of the variance of wasted votes. All variables have the expected positive signs, but only the national legal threshold is statistically significant (at the 0.1 level). These findings are in line with previous research (Tavits and Annus 2006; Lago and Martínez 2012). The second model, which adds to the first one the time (in years) since the country has been democratic and the *Number of Days of Poll Embargo* prior to the Election Day, produces a better fit (an adjusted R^2 of 0.30). The *Age of Democracy* (at the 0.01 level) and *ENEP* (at the 0.1

⁹ Available on-line at <http://www.systemicpeace.org/polity/polity4.htm>.

¹⁰ Diagnostic tests indicate that there are no outliers or influential observations. When running robust regressions the results do not change appreciably.

level) are the only statistically significant variables. As expected, the amount of wasted votes is greater in young democracies and highly fragmented party systems. Pre-Election Day poll restrictions do not significantly affect electoral coordination, although the sign is positive. Finally, the interactive model produces the largest adjusted R^2 (0.37). More importantly, the interaction between *ENEP* and the *Number of Days of Poll Embargo* is positive and statistically significant at the 0.01 level. As predicted by our hypothesis, poll restriction increases the amount of wasted votes in complex information environments (i.e., when there are many parties). The *Age of Democracy* is again positive and statistically significant at the 0.01 level¹¹. The existence of a national legal threshold and the percentage of all assembly seats allocated in the upper tier have a positive impact on the amount of wasted votes, but are not statistically significant.

[INSERT TABLE 2 ABOUT HERE]

The positive sloping line in Figure 1 shows how the marginal effect of the number of days of poll embargo prior to the Election Day changes with the effective number of electoral parties, when all the remaining variables in Model 3 from Table 2 are set at their mean values. As can be seen, the number of days of poll embargo has a strong effect on the percentage of wasted votes when there are many parties. Based again on the results of Model 3 in Table 2, Figure 2 simulates the percentage of wasted votes for different combinations of the number of days of poll embargo and the effective number of political parties when all the remaining variables are set at their mean values. For instance, given 2 days of pre-Election Day poll embargo, the percentage of wasted votes is expected to be the same, independently of having 3 effective electoral parties or

¹¹ We have found no evidence of an interaction between the *Age of Democracy* and poll embargo.

7. However, when there are 14 days of pre-Election Day poll embargo, the expected percentage of wasted votes will be between 2 and 5 percent when ENEP is 3, but between 11 and 14 percent when ENEP is 7.

[INSERT FIGURE 1 ABOUT HERE]

[INSERT FIGURE 2 ABOUT HERE]

Individual-level analysis

In the aggregated empirical analysis we have found that the blackout period on the publication of polls makes a difference for electoral coordination when the party system is highly fragmented. We examine now to what extent voters' perceptions of the various parties' chances of winning are affected by poll restrictions in order to provide individual-level evidence supporting the informational failure.

The premise of our individual-level analysis is that as the election campaign draws on, voters are better informed about what is at stake. As Brady et al. (2006, 2-3) explain, there is a direct relationship between the proximity of the Election Day and citizens' attention to politics. This greater salience is manifested in voters' media attentiveness, campaign interest, political discussion, knowledge about candidates, and strength of vote intention. Therefore, voters' expectations about parties' chances of winning should be more accurate in the day(s) immediately before the Election Day than at the very beginning of the campaign. However, the pattern should be different in those countries outlawing the publication of polling results in the last days of the campaign.

In order to test this argument, we rely on Internet panel surveys conducted by the *Making Electoral Democracy Work Project* during campaigns in Spain and Canada. Our individual-level analysis is focused on the 2011 national election in the 31-seat district of Barcelona and the 36-seat district of Madrid, and the 2012 regional (provincial) election in the single-member, simple-plurality districts in Quebec. There are several methodological and substantive reasons to select these countries and elections. First, while in Spain there is a five-day embargo on the publication of polls before the election, in the provincial election in Quebec the embargo only applies for the actual Election Day. Second, party-system fragmentation clearly differs across districts in Spain, thus allowing the testing of the conditional impact of the blackout period and party-system fragmentation. The effective number of electoral parties in Barcelona was 4.63, 3.61 in Quebec and 2.84 in Madrid. In other words, as can be seen in Table 3, we have three possible scenarios to show that information about the chances of parties is affected by the interaction between the existence of blackout period on the publication of polls and a highly fragmented party systems (Barcelona) –but not when a poll embargo is accompanied by a lowly fragmented party system (Madrid) or when a highly fragmented party system is not combined with poll embargo (Quebec). Third, individual-data elections are directly comparable in all these elections.¹² Apart from

¹² The Quebec election was held on September 4, 2012; the pre-election survey was conducted between August 24 and September 1, 2012, and the post-election survey between September 5 and September 23, 2012. The representative sample includes 990 interviewees. The Spanish national election was held on November 20, 2011. The pre-election survey in Barcelona and Madrid was conducted between November 10 and November 18, 2011, and the post-election survey between November 21, 2011 and December 4, 2011. Two representative samples of 773 and 976 individuals were respectively interviewed. All these surveys have been conducted by Harris International, relying on their panel of respondents. The sampling

having the same technical characteristics, the three questionnaires include the same questions, tapping respondents' perceptions of the various parties' chances of winning the seat in the respondent's district. Fourth, as they are Internet-based survey, individuals have been interviewed almost along all the campaign days.¹³ Finally, voter's exposure to polls is similar in Barcelona, Madrid and Quebec. The *MEDW* surveys do not contain questions about exposure or opinions about polls, but several surveys conducted in Spain and Canada include a question about whether the respondent was exposed to polls in election campaigns. According to the face-to-face post-election survey in 2011 conducted by the *Centro de Investigaciones Sociológicas* (CIS study 2920), 73 percent of individuals (504 out of 695) in Barcelona and 83 percent (657 out of 795) in Madrid knew the results of some pre-election survey. Similarly, according to the Internet post-election survey conducted by the CROP polling firm in the 2011 federal election, 85 percent of individuals (606 out of 715) in Quebec knew the results of some pre-election survey.

[INSERT TABLE 3 ABOUT HERE]

We have examined whether there are differences in the accuracy of voters' expectations before and after the poll embargo. In order to make comparisons across elections, the poll embargo period has been coded as follows. In Spain there are 15

was based on a stratified, quota-based approach. Quotas were set by controlling for age, gender, education and status. For further details see <http://electoraldemocracy.com/>

¹³ At the conclusion of the survey data collection and cleaning, the data were weighted by age, gender, education, and vote intention to reflect the actual proportions found in the population. This ensures the findings from the research can be extrapolated to the entire population with accuracy. See <http://electoraldemocracy.com/> for more details.

electoral campaign days and polls are only prohibited in the last 5 days before the Election Day. All else being equal, the highest level of information about parties' chances of winning should be reached on the 10th day of the campaign –the last day in which the publication of polling results is authorized–, and then information will progressively tend to decrease. In Barcelona and Madrid, we have created a dummy variable that equals 1 for the two last days of the campaign –the 14th and 15th days¹⁴– and 0 for all campaign days in which the publication of polls is legal. Respondents interviewed on the 11th, 12th and 13th have been excluded to capture the impact of the poll embargo as they still have in mind poll predictions¹⁵. In Quebec, we have created a similar dummy variable for the last two days of elections in which we have data, simulating the existence of the pre-Election Day poll restriction. The distribution of interviews during the campaign in the three elections is shown in Table 4.

[INSERT TABLE 4 ABOUT HERE]

We should expect to find differences in the accuracy of voters' perceptions of the various parties' chances of winning between the non-embargo and the embargo periods in Barcelona and Madrid, but not in Quebec. However, according to our argument, the five-day blackout period on the publication of polls should only make a difference in Barcelona, where the party system is highly fragmented. When the number

¹⁴ We have selected the last two days of the campaign and not only the last one to have a significant number of observations. The results do not change appreciably if we focus only on the last day.

¹⁵ Respondents on the 11th day of the campaign, when the publication of polling results is prohibited, will have more information than those interviewed on the 9th, the day before the massive publication of poll results in the mass media in Spain. Including the days immediately after the 10th would artificially condition the analysis.

of parties entering the race is low and the same parties systematically win seats in all elections, like in Madrid, the uncertainty faced by voters is low and then pre-Election Day polls are not as important as public coordinating signals.

To explore the effect of the blackout poll period on voters' electoral expectations, we have run a regression for each election. The dependent variable is the accuracy of voters' perceptions of the various parties' chances in their districts on a scale from 0 (no chance at all) to 10 (certain to win).¹⁶ For those parties that did win a seat in a particular district, the higher the chances given to a party the more accurate the expectations are deemed to be. The scale is reversed for parties that did not win a seat, that is, the higher the score the more correct the answer. Therefore, for all parties a value of 0 corresponds to the most incorrect prediction and a value of 10 to the most accurate prediction.

As the formation of expectations is not only based on 'objective' pieces of information, but on partisan preferences and the degree of political sophistication of individuals (see Blais and Bodet 2006 and Guinjoan et al 2014), we have included some controls. On the one hand, voters with strong partisan preferences tend to overestimate the chances of preferred parties and underestimate the chances of disliked parties. We have included a party identification variable that equals 1 for those individuals who are close to the corresponding party, 0 otherwise. On the other hand, citizens' level of

¹⁶ The specific question in the surveys in Quebec is the following: "Please rate the chances of each party's candidate winning the seat in your local riding on a scale from 0 to 10, where 0 means no chance at all and 10 means certain to win". In Barcelona and Madrid the question is as follows: "Please rate the chances of each party winning at least one seat in your district on a scale from 0 to 10, where 0 means no chance at all and 10 means certain to win".

political awareness is a determinant of whether external information about the environment is received or not and whether the information is accepted or not (Blais and Bodet, 2006: 481-482). Accordingly, we have incorporated the following variables into the model: age (in years), the square of age, gender (0 female, 1 male), education (from 1 to 6 in Spain and from 1 to 11 in Quebec, with 1 corresponding to the lowest level of educational attainment and 6/11 corresponding to the highest levels). As the dependent variable is reversed for parties that did not win a seat, the control variables have also been reversed for these parties.¹⁷ The regression model has been weighted by age, gender, education, region, and vote intention. Finally, given that every individual is asked to rate each party's chances of winning, the data have been converted from wide to long form.¹⁸ Thus, the following model will be estimated for each election:

$$\begin{aligned} \text{Accuracy of perceptions of parties' chances of winning} = & \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Age}^2 \\ & + \beta_3 \text{Gender} + \beta_4 \text{Education} + \beta_5 \text{Party ID} + \beta_6 \text{Poll Embargo} + \mu \end{aligned}$$

¹⁷ For instance, the variable *Party Identification* takes the value 1 for a respondent identified with a party that won a seat in the district and the value -1 for a respondent with a party that did not win any seat in the district. In the case of *Age* we have recoded the variable to start at value 0 (instead of 18) and then it has been reversed when respondents evaluate the chances of parties that did not win seats.

¹⁸ Seven parties are included in Barcelona in the analysis (*Partit dels Socialistes de Catalunya* (PSC) *Partido Popular* (PP), *Convergència i Unió* (CiU), *Iniciativa per Catalunya Verds–Esquerra Unida i Alternativa* (ICV-EUiA), *Esquerra Republicana de Catalunya* (ERC), *Plataforma per Catalunya* (PxC) and *Unión Progreso y Democracia* (UPyD)); four parties are included in Madrid (*Partido Socialista Obrero Español* (PSOE), *Partido Popular* (PP), *Izquierda Unida-Los Verdes* (IU-LV) and *Unión Progreso y Democracia* (UPyD)); and six parties in Quebec (the Liberal Party (PLQ), the *Parti Québécois* (PQ), the *Coalition Avenir du Québec* (CAQ), the *Québec Solidaire* (QS), the *Option Nationale* (ON) and the Green Party of Quebec (GPQ)) (Table A2 in the appendix summarizes the electoral results of these parties).

In Quebec, an additional control has been included – the closeness of local races. As the difference between the top two candidates' vote percentages in the district gets larger (i.e., when there is a sure winner), the more accurate voters' expectations should be. We have introduced a dummy variable, voters' perceptions of the closeness of district races, that equals 0 when voters expected that the outcome of the election would be not very close or not close at all and 1 when they expected a very close or somewhat close outcome. The variable is expected to enter negatively into the model. In Barcelona and Madrid however, there is no similar question in the *MEDW* survey. The omission of this question in the PR systems is not surprising. It is assumed in the literature that PR district elections are always competitive given that in multimember districts there are many seats and thus simultaneous contests going on (see for instance, Blais and Carty 1990, 167 or Franklin 2004, 74, note 17). Similarly, it is not clear that electoral competitiveness can be measured in the same way in PR and single-member plurality systems (Blais and Lago, 2009).

The results are displayed in Table 5. When explaining voters' perceptions of the various parties' chances of winning in Barcelona, the variable *Poll Embargo* has the expected negative sign and is statistically significant at the 0.05 level. That is, voters' perceptions are less accurate in the two days before the Election Day than when poll results are available in the mass media. However, the variable is neither statistically significant in Madrid or in Quebec. Thus, in these three elections there are no differences in the accuracy of voters' expectations in the (true or simulated) embargo and non-embargo periods. The evidence is clearly in line with the results of the aggregate analysis: pre-Election Day poll restriction only makes a difference for electoral coordination when the number of parties entering the race is high. When

including *closeness* in the model for Quebec, the fit clearly improves and, as expected, the variable is negative and statistically significant at the 0.01 level (i.e., the less the perceived distance between the first two parties in the district, the less the accuracy of voters' expectations). However, the most interesting result for our argument is that the coefficient on *Poll Embargo* does not change appreciably across models. Finally, party identification is the control variable with the most robust effect across models: expectations are shaped by wishful thinking as partisans overestimate the chances of their party.

[INSERT TABLE 5 ABOUT HERE]

However, the implications of this finding for the functioning of democracies are different depending on the type of citizens affected by the informational failure created by a poll embargo. According to one line of thought, grounded in the *spiral of silence* theory (see Noelle-Neumann, 1984 or, more specifically, Donsbach et al, 2013), the ban on pre-election polls would mainly affect the behavior of politically less informed voters. As an individual's willingness to express her opinion is a function of how she perceives public opinion, polls would be used by politically less informed voters as a signal of which party is ahead of the race and then they would support it in public. A second interpretation is that poll embargo would have a particularly negative effect on the accuracy of expectations of the politically more informed voters. Due to their stronger political involvement and higher levels of political awareness, they would be more sensitive to the available contextual information about parties' chances of winning. While the first interpretation would result in a larger gap in the political

influence of lower and higher socio-economic groups, the second one would lead to a smaller gap.

In Table 6, the relationship between individuals' information and the influence of election polls in Barcelona is displayed. Individuals are divided into two groups depending on whether they are above or below the mean in an information scale going from 0 (no information at all) to 3 (maximum level of information). The scale captures whether individuals are able to correctly attribute the slogan from the election campaign to the corresponding party.¹⁹ As can be seen, the poll embargo makes a difference for the politically less informed voters: the accuracy of their expectations about the various parties' chances of winning drops in the embargo period in comparison with the no-embargo period; the difference is statistically significant at the 0.01 level. However, there are no statistically significant differences for those individuals scoring above the mean in the information scale in the non-embargo and the embargo periods. In other words, according to the evidence in Catalonia, laws outlawing the publication of polling increase the information gap and therefore, the political influence between socio-economic groups.

[INSERT TABLE 6 ABOUT HERE]

Conclusions

Poll embargoes in contemporary democracies have important normative and empirical implications. In this paper, we have mainly focused on the latter. Using

¹⁹ Those respondents who were familiar with three slogans from the campaign were asked to attribute the slogan to the corresponding party, PSC-PSOE, PP or the ERC.

aggregated data for 46 democracies and individual data for Spain and Canada, we have shown that the prohibition of pre-election polls deliberately generates an information failure that leads to a coordination failure in *multiparty* elections. When information demands go up as a consequence of the proliferation of parties, poll embargo negatively affects the accuracy of voters' electoral expectations and then the amount of wasted votes increases.

However, a poll restriction does not equally affect all individuals. The information failure is particularly relevant for those voters with a lower political awareness. Therefore, laws outlawing the publication of polling increase the information gap and therefore, the political influence between socio-economic groups.

Of course, more investigation can be done to find out the consequences of poll embargoes for electoral democracies. First, changes in embargo periods prior to Election Day within countries are natural experiments that should be examined in detail. Second, in order to know whether there is really a trade-off between misinformation and unrestricted opinion poll reporting, more research on the relationship between a poll embargo and the quality of polls is crucial. Finally, the ban on pre-election polls is more frequent in young democracies than in traditional ones, that is, in those countries in which voters have lower levels of knowledge regarding the political landscape and the electoral strength of competitors (Bielasiak 2002). In our sample of 46 democracies, in 14 of the 22 third-wave democracies (i.e., those countries which transitioned to democracy in the 1970s or afterwards), which accounts for 60.9 percent of the total, there is some kind of limitation on publishing polls before the Election Day, but only in 5 of the 23 traditional democracies, which translates to 21.7 percent of the total. This

distribution of poll embargo across countries opens up an important research question not addressed in this paper. Are new democracies more reluctant to open fully to political information? Or, alternatively, do democracies walk towards unrestricted opinion polling during electoral campaigns as time goes by? Clearly, this question merits attention in future research.

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Figures

Figure 1. Marginal Effect of the Number of Days of Poll Embargo on the Percentage of Waste

Figure 2. Simulating the Percentage of Wasted Votes

Tables

Table 1. Summary Statistics

<i>Variable</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
% of Wasted Votes	46	.063	.062	0	.242
# Days of Poll Embargo	46	2.478	4.902	0	21
ENEP	46	5.039	2.180	1.932	11.209
National Legal Threshold	46	.022	.023	0	.067
% Upper Seats	46	.067	.180	0	.871
(Inverse) Age of Democracy	46	.029	.020	.005	.077

Table 2. The Determinants of Wasted Votes

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
	<i>b</i>	<i>(SE)</i>	<i>b</i>	<i>(SE)</i>	<i>b</i>	<i>(SE)</i>
ENEP	.008	(.005)	.008 [†]	(.005)	.004	(.005)
National Legal Threshold	.782#	(.448)	.433	(.394)	.500	(.402)
% Upper Seats	.074	(.074)	.083	(.066)	.092	(.062)
(Inverse) Age Democracy			1.086**	(.393)	1.123*	(.415)
# Days of Poll Embargo			.000	(.002)	-.008**	(.002)
ENEP*#Days of Poll Embargo					.002**	(.001)
Constant	-.000	(.022)	-.026	(.024)	-.008	(.025)
Observations	46		46		46	
Adjusted R ²	.222		.303		.368	

Standard errors in parentheses.

p<.1, * p<.05, ** p<.01, *** p<.001

Table 3: Elections in Barcelona and Madrid (Spain) and Quebec (Canada)

		Party-System Fragmentation	
		High	Low
Blackout Period	Yes	Barcelona	Madrid
	No	Quebec	-

Table 4. Number of Respondents during the Campaign in Barcelona and Madrid (Spain) and Quebec (Canada)*

	Electoral campaign days											
	No-embargo period						Embargo period					
	1	...	6	7	8	9	10	11	12	13	14	15
Barcelona		...	—	54	223	92	143	108	78	138	75	40
Madrid	—	...	—	50	190	179	163	152	70	97	40	35
Quebec	—	...	242	128	11	243	87	76	51	50	2	—

*In bold the number of individuals included in the analysis. The remaining values have been excluded.

Table 5. The Effect of Poll Embargo on the Accuracy of Voters' Expectations

	<i>Model 1: Barcelona</i>		<i>Model 2: Madrid</i>		<i>Model 3: Quebec (I)</i>		<i>Model 4: Quebec (II)</i>	
	<i>b</i>	<i>(SE)</i>	<i>b</i>	<i>(SE)</i>	<i>b</i>	<i>(SE)</i>	<i>b</i>	<i>(SE)</i>
Age	-.006	(.022)	.043	(.031)	.037	(.023)	.021	(.021)
Age ²	.000	(.000)	-.000	(.001)	-.001	(.000)	-.000	(.000)
Gender	.477*	(.234)	.598*	(.270)	-.213 [†]	(.122)	-.289*	(.123)
Education	.060	(.097)	.417***	(.102)	-.055 [†]	(.031)	-.046	(.032)
Party ID	1.590***	(.171)	1.731***	(.176)	.689***	(.090)	.689***	(.092)
Poll Embargo	-.466*	(.223)	.452	(.363)	.442	(.272)	.428	(.275)
Closeness							-1.330***	(.156)
Constant	6.610***	(.518)	4.986***	(.528)	6.712***	(.390)	7.831***	(.396)
Observations	3226		2493		3083		2925	
Cluster (individuals)	475		631		792		746	
<i>R</i> ²	.030		.081		.022		.070	

Standard errors in parentheses. Data are clustered by individual.

* p<.05, ** p<.01, *** p<.001

Table 6. Information and Accuracy of Expectations in Barcelona

	No Embargo			Embargo			Difference
	Mean	Std. Dev.	N	Mean	Std. Dev.	N	
Poorly- informed individuals	6.97	.074	1666	6.50	.170	398	-.47***
Well-informed individuals	7.75	.069	1605	7.88	.159	328	.13

*** p<.001

Annex

Table A1. Elections Included in the Analysis

Country	Year	% Wasted votes	ENEP	% National Legal Threshold	% Upper Seats	(Inverse) Age Democracy	# Days of Embargo
Argentina	2013	7.5	7.52	0	0	.032	15
Australia	2013	4.5	4.23	0	0	.009	0
Austria	2013	5.6	5.15	4	0	.015	0
Belgium	2010	4.8	9.87	0	0	.014	0
Brazil	2010	.6	11.21	5	0	.034	2
Bulgaria	2013	24.2	5.34	4	87.1	.042	0
Canada	2011	4.3	3.43	0	0	.007	1
Costa Rica	2010	2.3	4.13	0	0	.008	7
Croatia	2010	19.3	4.19	5	0	.071	1
Cyprus	2011	2.3	3.85	1.8	0	.022	7
Czech Republic	2010	18.8	6.69	5	0	.042	3
Denmark	2011	.8	5.71	2	0	.014	0
Dominican Republic	2010	2.0	2.11	0	0	.056	0
El Salvador	2012	1.8	3.24	0	0	.033	1
Estonia	2011	10.5	4.73	5	0	.043	0
Finland	2011	2.0	6.51	0	0	.012	0
France	2012	.0	3.16	0	0	.015	0
Germany	2013	9.8	4.08	5	50	.015	0
Greece	2012	19.0	8.47	3	0	.026	15
Iceland	2013	11.8	5.83	0	0	.014	0
India	2009	1.4	6.75	0	0	.016	0
Indonesia	2009	18.3	9.60	2.5	0	.067	0
Israel	2013	7.1	8.62	2	0	.015	0
Italy	2013	7.2	5.33	4	0	.015	15
Japan	2012	.6	3.82	0	37.5	.016	0
Latvia	2011	5.0	5.15	5	0	.043	0
Lithuania	2012	9.3	7.59	5	50	.043	0
Netherlands	2012	0.9	5.94	6.7	0	.014	0
New Zealand	2011	3.4	3.15	5	41.7	.006	0
Norway	2013	2.8	4.87	0	0	.014	1
Peru	2011	5.9	5.71	0	0	.077	7
Poland	2011	4.1	3.74	5	0	.043	1
Portugal	2011	4.6	3.67	0	0	.026	1
Romania	2012	3.2	2.30	5	23.5	.056	7
Serbia	2012	12.5	6.32	5	0	.071	2
Slovakia	2012	19.3	4.23	5	0	.048	0
Slovenia	2011	7.7	5.58	4	0	.043	0
South Africa	2009	.8	2.13	0	0	.050	0
South Korea	2012	1.3	2.91	3	18.0	.038	21
Spain	2011	3.3	3.34	0	0	.028	5
Sweden	2010	1.4	4.78	4	0	.010	0
Switzerland	2011	4.4	6.32	0	0	.006	0
Trinidad and Tobago	2010	.3	1.93	0	0	.019	0
UK	2010	6.5	3.68	0	0	.006	0
Uruguay	2009	.7	2.74	0	0	.034	2
USA	2012	3.7	2.15	0	0	.005	0

Table A2. Summary of Electoral Results

<i>Political Party</i>	<i>Votes</i>	<i>Percentage</i>	<i>Seats</i>
Barcelona (2011)			
<i>Partit dels Socialistes de Catalunya</i>	727,220	28.3%	10
<i>Convergència i Unió</i>	710,178	27.6%	9
<i>Partit Popular</i>	547,376	21.3%	7
<i>Iniciativa per Catalunya-EUiA</i>	237,327	9.2%	3
<i>Esquerra Republicana de Catalunya</i>	169,601	6.6%	2
<i>Plataforma per Catalunya</i>	53,142	2.1%	0
<i>Unión, Progreso y Democracia</i>	33,111	1.3%	0
Others	90772	3.5%	0
Total	2,568,727	100%	31
Madrid (2011)			
<i>Partido Popular</i>	1,708,572	51.4%	19
<i>Partido Socialista Obrero Español</i>	875,044	26.3%	10
<i>Unión, Progreso y Democracia</i>	346,122	10.4%	4
<i>Izquierda Unida-Los Verdes</i>	270,223	8.1%	3
Others	125373	3.8%	0
Total	3,325,334	100%	36
Quebec (2012)			
<i>Parti Québécois</i>	1,393,703	31.9%	54
<i>Liberal</i>	1,360,968	31.2%	50
<i>Coalition Avenir Québec</i>	1,180,235	27.1%	19
<i>Québec Solidaire</i>	263,111	6.0%	2
<i>Option Nationale</i>	82,539	1.9%	0
Green	43,394	1.0%	0
Others	38,738	.9%	0
Total	4,362,688	100%	125