Party-related primacy effects in proportional representation systems: evidence from a natural experiment in Polish local elections

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Abstract

We study the primacy effects that occur when voters cast their votes because a candidate or party is listed first on a ballot. In the elections that we analyzed, there are three potential types of such effects that might occur when voters vote for (1) the first candidate listed on the ballot in single-member district (SMD) elections (*candidate primacy*); (2) the first party listed on the ballot in open-list proportional representation (OLPR) elections (*party primacy*); or (3) the first candidate on a party list in OLPR elections (*list primacy*). We estimated the party primacy effect (2) and established that there was no interaction between (2) and (3). A party primacy effect is especially difficult to estimate because parties' positions on ballots are typically fixed in all multi-member districts (MMDs) and it is impossible to separate the first-position "bonus" from a party's normal electoral performance. A rare natural experiment allowed us to estimate the primacy party bonus between 6.02 and 8.52% of all votes cast for the 2014 Polish local elections. We attribute the large size of such bonus to the great complexity of voting in the OLPR elections, especially the much longer ballots, voting in many simultaneous elections, and ballot design as a booklet rather than a sheet.

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1 Introduction

The *ballot order effect* reflects how the position of a candidate or party on a ballot affects the number of votes they receive. A special case is a *primacy effect*, which reflects the "bonus" received for being listed first on the ballot. Our goal is to provide the first estimate in the literature of the primacy effect for parties in open-list proportional representation (OLPR) elections.

In proportional representation (PR) systems, voters can express their party preferences in many ways. With a closed-list PR ballot,[1] voters choose only among party lists, and the seats are allocated according to the candidates' pre-assigned positions. In OLPR systems, ballot structures vary. For example, in the Czech Republic, voters may vote separately for a party and a candidate or they may vote only for a party; a candidate whose name is placed low on the list needs to receive a certain percentage of votes to bypass higher-ranked candidates. In the OLPR variant used in Poland, such a "split ticket" vote is impossible. Voters cast one vote for one candidate, which is also automatically counted as a vote for the candidate's party, and those candidates with the most votes on the party list receive the seats that were won by the party.

We estimated the corresponding party primacy bonus associated with a party being listed first on the ballot for the Polish local elections of 2014. The bonus was defined as the difference between the percentages of actual votes cast for the first-listed party and the estimated percentages that a party would have received had there been no primacy effects. Our main hypothesis is that the party primacy bonus in OLPR elections is positive. The intuition behind the hypothesis is simple: Ballots in OLPR elections include many candidates, and the complexity of choices in OLPR elections motivates some voters to vote for the first-listed party. Asking voters to make choices in a PR system on two levels—interparty, i.e., the choice of a favorite party, and intraparty, i.e., the choice of a candidate within a voter's favorite party—can amplify the confusion.

In 2014, an exceptional natural experiment made it possible to rigorously test our hypothesis. A relatively large party, PiS (*Prawo i Sprawiedliwość—Law and Justice*), was listed first in districts in about one-fourth of all counties but second or third in the remaining districts in county elections, where a medium-size party, PSL (*Polskie Stronnictwo Ludowe—Polish People's Party*), was listed first. At the same time, PiS was always listed second or third in parallel elections run at the higher provincial level: PSL was always listed first, which provided a valuable explanatory variable for differences in PiS or PSL's performance by position on the ballot in the county elections. Utilizing that natural experiment, we estimated the party primacy bonus for both PiS and PSL. To the best of our knowledge, these are the first estimates of such an effect to be reported in the literature.

The paper proceeds as follows. In Sects. 2 and 3, we explain the structure of local governments in Poland and the elections that provide our data. The natural experiment is described in Sect. 4 and estimates provided in Sect. 5. The final section concludes with a discussion and policy recommendations.

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[1] Terminological nuances and ambiguities arise with list-based PR systems; e.g., the Czech system is often called semi-open, while the Polish system is called open a well as semi-open. See Passarelli (2020) for a review of many variants and naming conventions.

2 Primacy effects in various electoral systems

The following three types of primacy effects were potentially present in the local elections that we analyzed:

1. *Candidate primacy* In single-member district (SMD) elections, primacy with respect to candidate positions on ballots
2. *Party primacy* In OLPR elections, primacy with respect to parties' positions on ballots
3. *List primacy* In OLPR elections, primacy with respect to candidate positions on party lists.

The classification above is by no means exhaustive. Primacy effects likewise may appear for other voting methods (approval voting, ranking of candidates in STV [single transferable vote], SNTV [single non-transferable votes in multi-member districts (MMDs)], and so on) The main difference between SMD and OLPR elections is that parties in the latter compete not with single candidates but with lists of candidates. Thus, voters choose a party and a candidate on a party's list. Those two choices may create two positional effects in OLPR systems, numbers 2 and 3 above, in contrast to a single effect in SMD systems. Below, we describe the three effects in more detail.

The first effect*, candidate primacy*, has been studied most extensively in first-past-the-post (FPTP) and majority runoff (MR) systems, the alternative vote elections in Australia (Orr, 2002), or MMD elections with candidates competing but no parties. Competitors in such elections have long recognized the advantage of being first on the ballot, and some have even changed their names strategically to earn alphabetical bonuses (Wilson, 1912, p. 593). Courts have become so familiar with that effect that they often refer to it as common knowledge in reversing election outcomes (Alvarez & Hasen, 2006). Typical estimates of the bonus vary from 1% in Australia (King & Leigh, 2009) to 2.3% for first place over last place on the ballot (Miller & Krosnick, 1998) or 3.3% in nonpartisan elections (Ho & Imai, 2008). In general, the strength of the effect is amplified by factors such as ballot length (Grant, 2017; Webber et al., 2014), lack of partisan endorsements (Ho & Imai, 2008), lack of information about candidates (Song, 2019), the low profile of primary elections (Koppell & Steen, 2004), and multi-winner systems for city council and school board elections (Meredith & Salant, 2013). Ballot-order effects may be very strong for down-ballot, low-profile elections with long candidate lists. In such races for judicial positions in Texas, the first-listed candidate may receive up to 10% more votes than the last candidate, a difference that results exclusively from the higher position on the ballot (Grant, 2017). With high-profile general elections with fewer offices on the same ballot and party-label information, primacy effects are substantially weaker or negligible (Darcy, 1986). No primacy effects were identified in referendums (Matsusaka, 2016).

Party primacy effects constitute the second category in our classification. Experimental studies have suggested that such effects are stronger for fictitious parties than for parties with recognizable names (Johnson & Miles, 2011). The effects have not been, to the best of our knowledge, studied with actual election data, because it is inherently difficult to obtain such data. That is because parties in OLPR elections and other list systems typically compete in small numbers of districts and occupy the same positions on the ballot in all districts. If such positions are the same in all districts, it is very difficult to distinguish between the votes a party received on its merits and the votes it received because of its first position on the ballot. We are aware of only one exception to the rule of uniform party

positions in all districts: such an exception was created by a natural experiment in Polish local elections in 2014 that we describe in Sect. 4.

The third effect, *list primacy*, is related to candidate positions within party lists. Various list-order effects were established without fully separating "pure" list-order effects from the political design of lists. In general, the difference between votes for candidates listed first and those listed second is wide (Faas & Schoen, 2006). A list prepared by party leadership signals the political endorsement of highly ranked candidates and provides informational shortcuts or cues to voters (Lutz, 2010 p. 170; Däubler & Rudolph, 2020), who consider such candidates to be more competent (Devroe & Wauters, 2020). Such cues may be misleading, however, when voters incorrectly infer a party-determined candidate's order (Song, 2019). The better performance of highly ranked candidates may partially be explained by the fact that they raise and spend more money in their campaigns (Gulzar et al., 2020). A spike may be observed for the last position on the list (Marcinkiewicz, 2014). When voters vote by mail, the primacy bonuses may be smaller (Jankowski & Frank, 2021), but positions on lists are not fully responsible for election victories. It is estimated that about 20% of seats in Polish national parliamentary OLPR elections were won by candidates who would not have won them in a closed-list PR system (Gendźwiłł & Raciborski, 2014; Raciborski, 1997).

The existence of a "pure" list primacy effect that is independent of candidate strength is common knowledge among politicians and has been confirmed widely in the literature. It is difficult to separate those factors, typically requiring special circumstances. Blom-Hansen et al. (2016) ingeniously identified a natural experiment in local and regional Danish elections, wherein listing candidates in columns on the ballot could be interpreted as a quasi-random allocation of some top positions. Also, van Erkel and Thijssen (2016) "distilled" a very strong "pure" primacy effect by controlling for candidates' political experiences and media coverage. Opinion polls in Poland also show a clear effect. In 2011, 6% of voters declared that they usually vote for the top candidate on a ballot list, 10% said they usually voted for highly positioned candidates, and the rest were indifferent or undecided (CBOS, 2011, pp. 5–6).

Election administrations determine ballot positions for candidates or parties in any of several ways. In the first two abovementioned cases—candidate primacy and party primacy—they may do so alphabetically, by lottery with a public drawing, or by systematic rotation across electoral districts. In the German mixed-member proportional (MMP) system, parties represented in the Bundestag occupy positions on ballots in each *land* (German states) according to their votes from previous elections in that *land*; the remaining parties are listed alphabetically. The same order applies to party candidates competing in the SMD part of the elections. On party lists, party leaders typically base the ordering of candidates on political grounds; in rare cases, such as in Denmark, the political process may be decentralized (Blom-Hansen et al., 2016, p. 175) or lists may be alphabetical, as in national parliamentary elections in Finland (Raunio, 2005, pp. 475–476).

3 Local government and local elections in Poland

For our estimates, we rely on Poland's 2014 local elections (see Table 4 in Appendix 2 for more detailed election results). Local elections provide a certain advantage over parliamentary or other elections for studying the political consequences or properties of electoral systems, because they typically involve many candidates for many elective offices,

which helps to strengthen the statistical significance of the findings (Gendźwiłł & Steyvers, 2021). Local elections also provide some disadvantages as they tend to be low-salience, low-information, "second-order" elections with smaller turnouts (Reif & Schmitt, 1980). Polish local elections are, however, quite unusual in that their turnouts are similar to those in national parliamentary elections.

Local governments in Poland are divided into three descending tiers or political divisions: provinces, counties, and boroughs. At the highest tier are 16 provinces (województwo); every province is divided into counties (powiat, 380 in total) and every county is divided into boroughs (gmina, 2477 in total).[2] The councils range in size from 15 to 60 members. Sixty-six special city-county boroughs exist, i.e., every such county constitutes one borough. Additional smaller administrative units can be set up in larger boroughs. Every voter in our elections lived in exactly one borough, one county, and one province when they voted. The chief executives of boroughs are elected directly,[3] while councilors elect chief executives in non-borough counties and provinces.

Local elections in Poland had taken place every four years until 2018, when they began being held every five years, for all three types of councils and borough leaders (see Table 1). In all 2014 elections, several (up to nine) MMDs were drawn in every province, county, or borough, with the only exception involving mayoral elections, where districts were boroughs.

Voters entering a voting location simultaneously received either three or four ballots. Most voters voted twice under an OLPR system, once under an FPTP system, and once under an MR system (elections 1, 2, 3b, and 4 in Table 1). In the 66 county-boroughs, county and borough elections were merged, so voters voted only three times, in one MR and two OLPR elections (1, 3a, and 4 in Table 1).[4]

Below, we refer to specific elections by the number or type of office, e.g., #4 (mayor) = mayoral elections of 2014.

Ballot orders for parties competing in all three OLPR elections (1, 2, and 3a) were established using the same lottery. On party lists, the order of candidates in all OLPR elections was decided by party leaders. In a MMD of magnitude n, a party list had to include at least n candidates but not more than $2n$. Larger parties typically listed close to $2n$ candidates while smaller parties typically offered minimal lists or were absent from ballots in some districts. No information was provided on ballots or otherwise about candidates' incumbency status. Thus, we safely can assume that the voters who recognized incumbents were relatively well-informed and extremely unlikely to vote for the first party listed on the booklet just because of its position. In general, incumbency was found to be somewhat important (with effects on an order of magnitude smaller than our estimated primacy effects) only in mayoral elections (Bartnicki, 2018).

We study the results of county council (#2) elections. The data from other elections are selected as control variables. All election results are listed in Table 4 in Appendix 1.

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[2] All data reflect electoral laws and administrative divisions as of Election Day on November 11, 2014 (Główny Urząd Statystyczny [Main Statistical Office] 2017).

[3] The administrative names of the heads of local governments vary depending on borough size. From now on we opt for one term, "mayor" ("włodarz" in the relevant Polish literature).

[4] The Polish OLPR system adopted Jefferson-D'Hondt's divisor algorithm. SMD methods included FPTP and MR systems, wherein, if the top candidate receives a majority, s/he is the winner; otherwise, the two top candidates compete in an FPTP runoff election two weeks later.

Table 1 Main characteristics of 2014 local elections

Type of office	Number of councils	Council size	Electoral law	District magnitude	Average parties	Number of candidates	Ballot Order
1. Province council	16	34.69 (30–51)	OLPR	6.53 (5–10)	12.93	104.72	Lottery
2. County council	**314***	**19.99 (15–29)**	**OLPR**	**4.71 (3–10)**	**6.22**	**48.7**	**Lottery**
3a. County-borough council	66	26.67 (18–60)	OLPR	5.71 (5–10)	7.95	76.75	Lottery
3b. Borough council	2411	15.70 (15–23)	FPTP	1	-	3.48	Alphabetic
4. Borough mayor	2475	1	MR	1	-	4.19	Alphabetic

Note: For each council there were several districts. The #2 elections examined by us are in bold; the other elections provided controls. "Number of councils" = the total number of councils; "Council size" = average seats for the council's size (in parentheses: seat interval); "District magnitude" = average district magnitude, i.e., the average number of seats elected in a district (in parentheses for OLPR: district magnitude interval); "Average parties" = average number of parties competing in OLPR; "Number of candidates" = average number of candidates on the ballot including single-candidate ballots in SMDs; "Ballot order" = the rule used for deciding the place on ballot for parties in OLPR or candidates in SMD elections; "boroughs" = smaller boroughs with no county status; "county-boroughs" = larger boroughs that are also counties. The ballot order for the three OLPR elections used the same lottery. Two boroughs were merged at the last minute, which caused a delay in the related mayoral elections

* Excluding 66 county-boroughs that were included in the 3a (county-borough) category

Source Główny Urząd Statystyczny (2018), Kodeks Wyborczy (2018), State Election Commission (2019).

4 The "natural experiment" in Poland's 2014 county council elections

As mentioned earlier, party primacy effects are difficult to identify in typical PR elections because party positions on the ballots normally are the same in all MMDs and are allocated by lottery after all competitors are registered. The lucky party drawing No. 1 retains that position in all MMDs. Therefore, the "positional" and "normal" votes for the party listed first on all ballots are conflated, and no clear way of disentangling them is available.

An exceptional coincidence that produced a rare natural experiment in the #2 (county) OLPR elections allowed us to estimate the most important component of ballot-order effects; namely, the party primacy effect. In the remaining two OLPR elections, the provincial (#1) and county-borough (#3a) elections, no similar phenomenon provided a natural experiment.

After all parties registered their lists of candidates, a lottery was held. A medium-size party, PSL, drew the first position on the ballots; the same order applied to all local OLPR elections. In the provincial elections, PSL was listed first on the ballot in all MMDs. In the county elections, though, in more than one-fourth of the counties, PSL did not register to compete as a party but formed a "freestanding committee of citizens." While based on the same political organization and having a similar name, the PSL-party and the PSL-freestanding committee were distinct legal entities. As such, the PSL-freestanding committee did not enjoy the same top position in the county elections as the PSL-party; in fact, it occupied a lower position on the ballot. In districts in such counties, the competitor with the No. 2 spot was automatically upgraded to the first position. The second spot was, however, assigned to a tiny citizens' committee, Direct Democracy (DD), which competed in only one county in which PSL was listed first; in all counties where the PSL-freestanding committee competed, the second position on the ballot was empty. As a result, the final beneficiary of PSL's double legal status was a major party, PiS, which drew No. 3 in the lottery for ballot positions. PiS competed as No. 3 (in only one county) or as No. 2 against the PSL-party in about three-fourths of all counties. In more than one-fourth of all counties where PSL-freestanding was on the ballot, PiS was listed first. In two counties, neither PiS nor PSL were on the ballot. Thus, the order of parties on all county ballots was as follows:

231 counties: PSL first, i.e., (PSL, PiS) or (PSL, DD, PiS) or (PSL, no PiS).
81 counties: PiS first, i.e., (PiS, PSL-freestanding) or (PiS, no PSL); (see Fig. 1).

If a party received extra votes for having been listed first in some counties, its electoral result in such counties should have been more favorable. We estimated such a hypothetical bonus for both PiS and PSL, but their situations were not fully symmetric. Technically, both PiS and PSL competed as first-listed in some counties, while in other counties they occupied more remote positions. Because PSL competed partially as the PSL-party and partially as PSL-freestanding, however, we could not separate the first-position bonus from a possibly troubling effect of having two slightly different PSLs. The potential effect of the two versions of PSLs on the votes of other parties, such as PiS, in the elections, should be diluted and negligible. Nevertheless, while the estimates for PSL show larger standard errors than for PiS, the numbers are remarkably similar.

5 Party primacy effects for OLPR county elections (#2)

When electoral law specifies the OLPR system, the menu of choices is long. In that system, voters choose a party as well as a name from the party's list of candidates. In county council elections (#2), the average number of candidates was 48.70, while
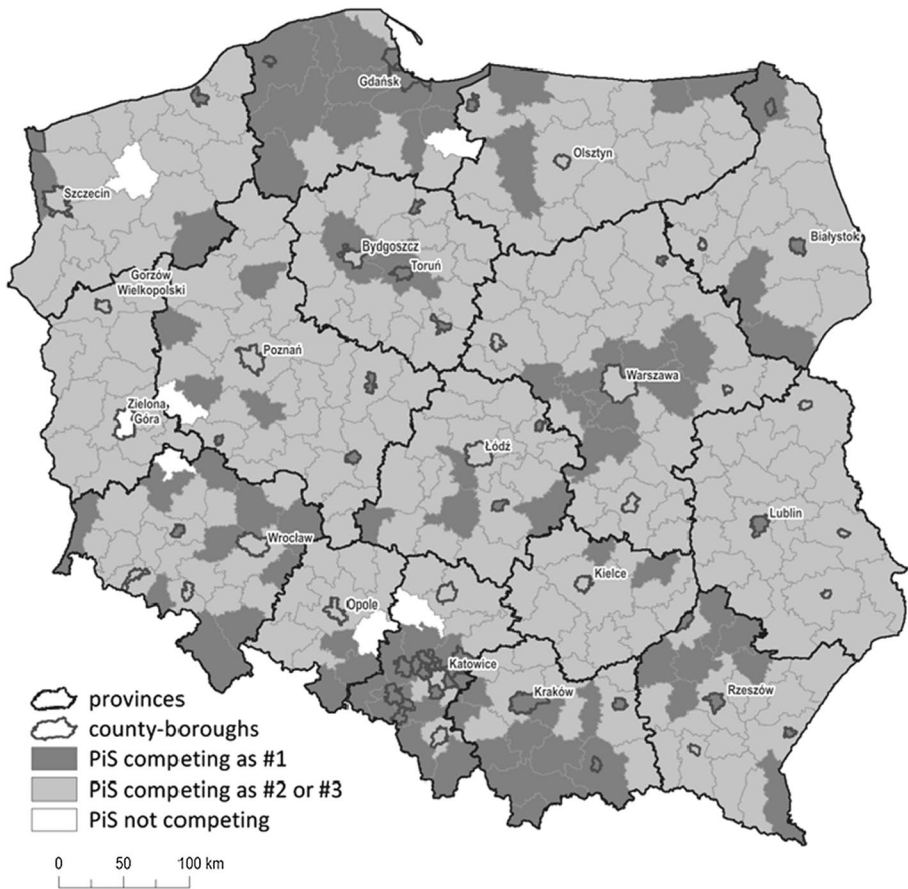
Fig. 1 The territorial distribution of the positions of PiS on the ballot in 314 counties in county elections (#2) and in 66 county-borough elections (#3a). *Note*: The position of PiS on the ballot, or the lack of a registered list of candidates, remains the same in all boroughs within a particular county. There are 16 provinces, with boundaries marked in black; 66 county-boroughs are small units within provinces with boundaries marked in medium-grey

in the remaining two OLPR elections, the numbers were 76.75 and 104.72 candidates (see Table 1). The longest ballot in the provincial elections included 182 candidates. Because candidates' places of residence were displayed prominently at the entries to voting booths, voters could have been incentivized to pick a "local" candidate within just the first party on the ballot (see Shugart et al., 2005; Jankowski, 2016). Even if voters chose the first party without noticing its identity, the choice of a local candidate could provide them with psychological alibis, assuring them that they had voted conscientiously (see Fig. 2). Some voters may select their preferred candidate first, and their party choice may then be automatic (Oscarsson & Rosema, 2019). The analysis of spoiled votes in the 2014 elections revealed similar effects (Gendźwiłł et al., 2016).
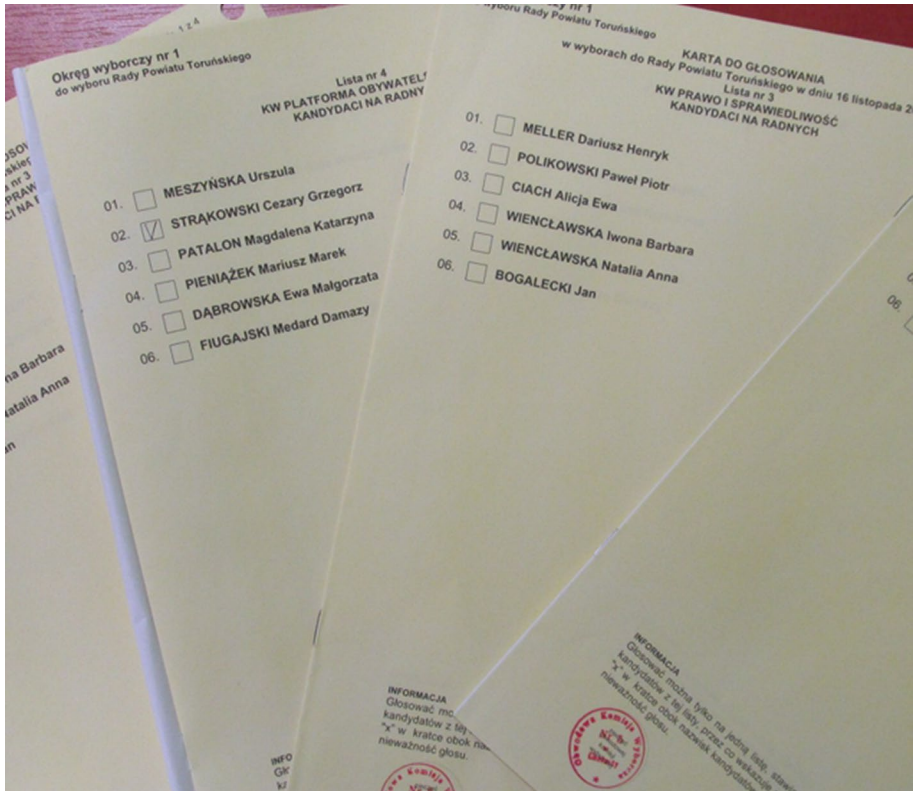
Fig. 2 Ballot booklet in 2014 county elections (#2). *Note*: Right: The first page of the ballot booklet, with PiS listed on the cover. Left: An inside page of the ballot booklet with the PO (*Platforma Obywatelska—Citizens' Platform*) candidates. Photo by Bartłomiej Michalak

5.1 Party primacy estimates for PiS

The natural experiment occurred in the county council elections (#2). Our units of observation were boroughs, wherein voters voted four times. All variables listed below record the percentages of total votes cast, including spoiled votes. The main dependent variable is the percentage of votes for PiS in boroughs in county council elections (#2). Our main explanatory variable PRIMACY equals 1 for those boroughs in which PiS was listed first (and PSL competed as a freestanding committee) and 0 elsewhere (where PSL competed as a party). Of the 314 counties that were not county-boroughs, we excluded eight cases in which PiS did not compete, which left us with 2338 boroughs where both PiS and PSL competed.

Our control variables included most notably Province-PiS, i.e., support in boroughs for PiS in provincial elections. In all provincial elections, PiS was listed second or third, because PSL competed as a party in the 2014 elections in all MMDs. Other control variables were related to county and provincial elections; additional electoral variables were related to 2014 mayoral and 2011 House elections as well as main territorial and demographic variables. We also considered a larger set of control variables typically entered in Polish election studies whose impact turned out uniformly to be statistically

Table 2 Dependent variable: percentage of votes for PiS in 2014 county elections (#2) at the borough level

Model	(1)	(2)	(3)	(4)
Constant	4.376***	7.665***	11.851***	12.958***
	−0.338	−1.31	−1.226	−3.035
PRIMACY	**8.523*****	**8.416*****	**8.006*****	**8.287*****
	−0.344	−0.341	−0.32	−0.325
Province-PiS	0.614***	0.599***	0.190***	0.187***
	−0.015	−0.015	−0.025	−0.025
County-list		−1.117***	−1.045***	−1.072***
		−0.119	−0.11	−0.112
Turnout		0.062**	−0.069***	−0.097***
		−0.02	−0.02	−0.023
House-PiS_11			0.740***	0.688***
			−0.042	−0.045
Mayor-PiS			0.084***	0.078***
			−0.009	−0.009
Mayor-PSL			−0.022***	−0.028***
			−0.006	−0.006
Population				0.583[A]
				−0.631
Urbanization				−0.007[B]
				−0.005
North				−0.869*
				−0.428
West				−2.783***
				−0.443
South				−0.532[C]
				−0.481
Adj. *R*-squared	0.519	0.538	0.61	0.616

Source Own calculations based on official election data from the State Election Commission (2019). Numbers represent the percentages of all votes cast. Control variables in the models: (1) only votes for PiS in province council elections (#1); (2) variables related to county and province elections; (3) variables related to 2014 local and 2011 House elections; (4) full model: variables related to 2014 local and 2011 House elections as well as main territorial and demographic variables. For detailed descriptions of the variables, see Appendix 1

***$p < 0.001$; ** $p < 0.005$; * $p < 0.05$; [A] $p = 0.356$; [B] $p = 0.174$; [C] $p = 0.269$.

nonsignificant in all configurations. All control variables are described in greater detail in Appendix 1.

In the second row of Table 2 (labeled PRIMACY) we report the estimates of the party primacy effect depending on the configurations of the control variables. Moving PiS to the top position on the ballot in county elections results, on average, in an estimated 8.01–8.52% larger vote share in boroughs. The results are similar and significant in all
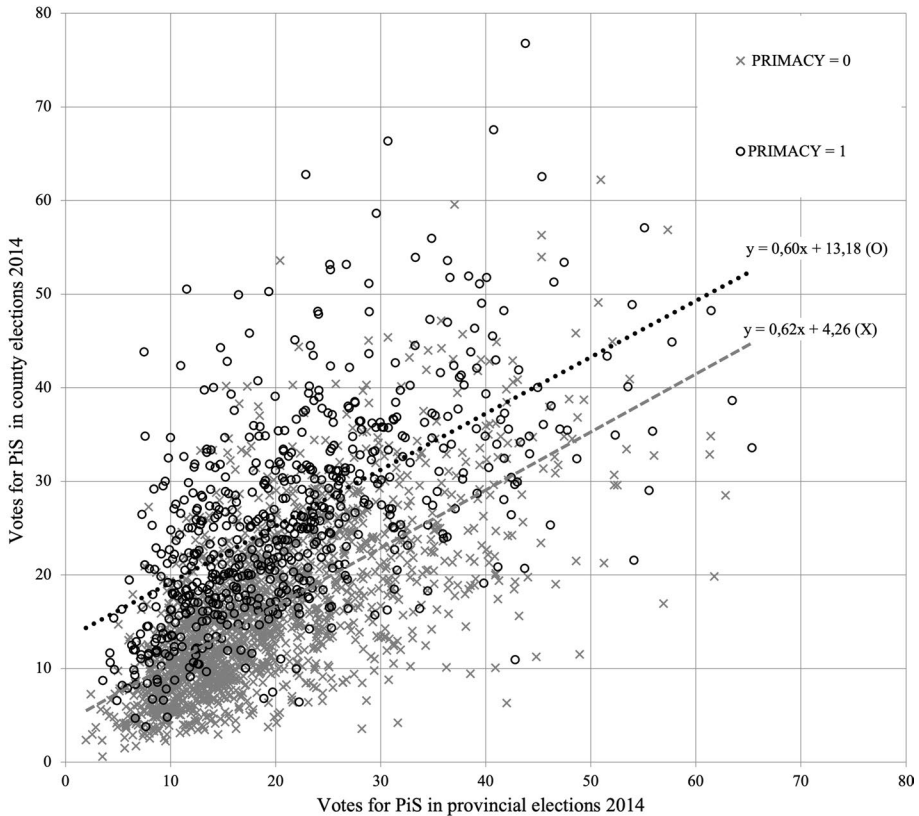
Fig. 3 Scatterplot of percentages of votes for PiS in boroughs in the 2014 county elections (#2) by percentages of votes for PiS in boroughs in province elections (#1). *Note*: PiS was listed first for PRIMACY = 1 (marked by o), and second or third for PRIMACY = 0 (marked by x). The numbers on the *x*-axis and *y*-axis represent the percentages of all votes cast

models.[5] Most of the demographic and territorial control variables are nonsignificant; a notable exception is Area-West, denoting the part of Poland that in 1795–1918 belonged to the Prussian partition. It is a region where support for PiS is substantially weaker than in other regions of Poland.

In addition to running our main model, we examined the PiS results in the 2014 county elections (#2) separately for the two PRIMACY values, i.e., in those boroughs where PiS was listed first and in those boroughs where it occupied a more remote ballot position. Parallel lines would imply that the estimate of the first-position bonus is relatively stable regardless of support for PiS in provincial elections (#1) (see Fig. 3).

In fact, the two regression lines are nearly parallel. The distance between the lines at various values of PiS support in boroughs in the provincial elections represents changes in the estimated magnitudes of the positional bonus. The estimated bonus ranges from 8.92%

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[5] The candidates competed at the county level, and our analysis was conducted at the lower, borough level. We estimated mixed models to check for a clustering problem in Model 1. No important changes in our main parameters were evident; the impact of our main explanatory variable PRIMACY was a slightly larger 8.67% (standard error 0.57; *t*-value 15.22; *p*-value < 0.001).

(when PiS support in the boroughs in the provincial elections (#1) was equal to zero) to 7.42% (when PiS support in the boroughs in the provincial elections (#1) was at its maximum of 65). At 26.89%, which is the actual average support for PiS in the provincial elections, the effect is estimated to be 8.38%, which is close to our previous estimates. We also note that a similar comparative analysis of PiS results in the 2010 and 2014 elections revealed two almost identical regression lines.[6]

The average of our five estimates of the PRIMACY bonus is 8.32%, the bump that a party receives exclusively for being listed first on the ballot. That is our estimate of the average first-position bonus for PiS in the OLPR county (#2) elections.

5.2 Interactions between party primacy and list primacy

We next checked whether party primacy and list primacy interact for PiS, i.e., whether a larger number of primacy votes for a party is associated with a larger (or smaller) number of votes for the first candidate on the party's list. If such interaction is evident, we would observe varying proportions of votes for the first position on the PiS list in MMDs where PiS competed as No. 1 versus down-ballot. As a control variable, we entered the number of votes for the first PiS candidate on the party's list in the 2010 local election. The differences turned out to be small and nonsignificant, with a two-sided *p*-value of 0.711 (*t*-test for differences in means). That result corroborates the hypothesis that party primacy and list primacy effects are independent of one another.

5.3 Party primacy estimates for PSL

In addition to providing estimates of party primacy effect for PiS, we conducted a similar analysis for PSL (see Table 3). The research design and the variables that we tested were defined analogously.

While both cases technically are symmetric, an important difference renders the estimates for PSL slightly less reliable than those for PiS. Recall that PSL competed in some districts as PSL-party, and in some districts as PSL-freestanding committee of citizens. The main difference was that PSL-freestanding formed some local coalitions with minor partners in districts while such coalitions for PSL-party were negligibly small. There was no comparable effect for PiS.

PRIMACY* denotes the estimated bonus that was obtained by PSL-party in about three-quarters of MMDs where it was listed first versus MMDs in which PSL's freestanding committee was listed further down the ballot. The main control variable, Province-PSL, represents PSL's results in provincial elections where PSL always competed as PSL-party and was listed first.

The estimates of PRIMACY* for PSL range from 6.02 to 8.06%, and are slightly smaller than comparable estimates for PiS, which ranged from 8.01 to 8.52%. As we mentioned already, we attribute the difference to the slightly more expansive coalitions formed by PSL-freestanding versus PSL-party, which added some small numbers of votes to the former consistently. Needless to say, PSL's leaders did not expect the party to win the first ballot position in the lottery, nor that it would capture a huge party primacy bonus that

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[6] An additional, more comprehensive analysis confirmed that PRIMACY had no statistically significant effects on the results of any party other than PSL or PiS in the 2014 and 2010 elections (Flis 2014).

Table 3 Dependent variable: percentage of votes for PSL in 2014 county elections (#2) at the borough level

Model	(1)	(2)	(3)	(4)
Constant	6.029***	20.215***	21.115***	18.778***
	−0.767	−2.059	−1.939	−4.941
PRIMACY*	**6.018***	**8.056***	**7.741***	**7.832***
	−0.725	−0.689	−0.647	−0.659
Province-PSL	0.561***	0.510***	0.324***	0.323***
	−0.018	−0.017	−0.021	−0.021
County-list		−3.170***	−3.000***	−3.011***
		−0.183	−0.173	−0.175
Turnout		0.059[A]	0.027[C]	0.024[C]
		−0.03	−0.029	−0.035
House-PSL_11			0.466***	0.454***
			−0.073	−0.074
Mayor-PiS			0.009[C]	0.007[C]
			−0.013	−0.013
Mayor-PSL			0.124***	0.124***
			−0.01	−0.01
Population				0.752[C]
				−0.992
Urbanization				−0.003[C]
				−0.008
North				−0.308[C]
				−0.638
West				−0.877[B]
				−0.668
South				−0.292[C]
				−0.718
Adj. *R*-squared	0.376	0.464	0.527	0.527

Source Own calculations based on official election data from the State Election Commission (2019). Numbers represent the percentages of all votes cast. Control variables in the models: (1) only votes for PSL in province council elections (#1); (2) variables related to county and province elections; (3) variables related to 2014 local and 2011 House elections; (4) full model: variables related to 2014 local and 2011 House elections as well as main territorial and demographic variables. For detailed descriptions of the variables, see Appendix 1.

***$p < 0.001$; [A] $p = 0.054$; [B] $p = 0.189$; [C] $p > 0.35$

would be much more valuable electorally than forming small local coalitions. Had party leaders anticipated those events, most likely PSL would have competed as PSL-party in all or almost all MMDs.

In general, while the estimates for the two models are similar, the PSL model explains less of the variation in that party's votes than the PiS model does, and the significance of control variables is weaker. We attribute those differences to the small number of extra votes that PSL-freestanding received because of the small coalition partners.

6 Conclusion

We estimated the primacy effects of voting for the parties listed first on ballots in local elections, which we call "party primacy" effects. Under normal circumstances, it is impossible to separate such effects from the normal electoral results of parties competing in OLPR systems. Herein, though, an unusual natural experiment allowed us to report estimates of the bonus that the top-listed party received in OLPR elections. To the best of our knowledge, ours is the first estimate provided in the literature of the party primacy bonus.

Our hypothesis predicted that the party primacy bonus would be positive and significant. Because of a natural experiment related to different legal statuses of one of the parties competing in Poland's 2014 local elections for county councils, PSL (*Polskie Stronnictwo Ludowe—Polish People's Party*) competed as first-listed on the ballot in about three-fourths of all districts as PSL-party. In the remaining over one-fourth of districts, a larger party, PiS (*Prawo i Sprawiedliwość—Law and Justice*), was listed first, and PSL was listed at a more remote position as PSL-freestanding committee of citizens. Our estimates showed that, by being listed first, PiS gained between 8.01 and 8.52% more votes than it would have otherwise. For PSL-party, being listed first allowed it to capture between 6.02 and 8.06% extra votes (compared to PSL-freestanding). Our estimates are for an OLPR system, but similar effects, perhaps of slightly smaller magnitude, may be evident in closed-list PR or STV systems that ask voters to make complex choices.

We found that the party primacy bonus associated with OLPR elections was substantial and statistically significant. Shugart et al. (2005, p. 440) note that, under the OLPR system, "the information demand on the voter is higher, for a given magnitude, than under a closed list." In fact, the information demands of Poland's OLPR elections were substantial. The average number of candidates in the 2014 county elections was 48.70. Moreover, voters had to make more complex choices in three additional elections (see Table 1). Poland's electoral institutions imposed a heavy cognitive burden on voters.

Our findings are consistent with the results of studies of SMD elections that feature long ballots in some low-profile elections (Grant, 2017) or in California referendums (Bowler et al., 1992). With many candidates on ballots, voters spend significantly less time learning about individual candidates (Seib, 2016) and are more likely to vote for status quo or first-position candidates (Augenblick & Nicholson, 2016). Brockington (2003) links larger first-position bonuses to voters' being more poorly informed about candidates. Similarly, experimental studies, such as Kim et al. (2015), report that the specific factors strengthening voters' propensities to choose the first-listed candidate include poor information, ambivalence, weak cognitive skills, and an unwillingness to exert effort in choosing, adding that voters may associate higher ballot positions with "good" (and lower positions with "bad") candidate traits.

We do not, of course, claim that our estimates generalize to other electoral contexts. Various institutional and sociocultural factors, as well as ballot formats, may be important. Below, we briefly discuss one such factor.

The effect of the "ballot booklet" likely is co-responsible for increasing the size of the bonus to the extent that it contributed to "ballot fatigue." The booklet format was adopted in 2014 in the wake of a 2011 electoral law that allowed visually challenged Polish voters to cast Braille alphabet ballots, which required booklets. While we cannot estimate how large the party primacy bonus would have been otherwise, because

the effects of "pure first position" and "ballot booklet" are impossible to separate, the first-position effect with a ballot booklet was very strong. We can add another warning about bad ballot designs (Flis, 2014, 2015; Geys & Heyndels, 2003; Pachón et al., 2017; Pierzgalski et al., 2020).

Our results suggest a few simple policy recommendations that would reduce the size of undesirable positional bonuses. Certainly, one should choose a ballot format with utmost caution and, moreover, the side effects of particularly exotic designs should be tested with survey or focus group data before elections are held. Using smaller MMDs and limiting the number of simultaneous elections could reduce the complexity of voting substantially. Limiting the lengths of party candidate lists from the maximum of $2n$ to n (where n is district magnitude, i.e., the number of seats elected in the district) would have shortened such lists in our three OLPR elections by at least 20–40%. On the other hand, a smaller number of candidates would restrict voter choices.

Perhaps the easiest fix for reducing the first-position bonus in OLPR elections would rely on diversifying the lottery for places on the ballot. Instead of conducting one nationwide lottery for all MMDs, separate lotteries or quasi-random procedures for districts or sub-national regions could rotate the ordering of parties on ballots. The goal would be to spread a possibly inevitable bonus across various parties. In the United States, many states deploy random or quasi-random rotations of candidate names across electoral districts (see, e.g., Darcy, 1986; Chen et al., 2014; Krosnick et al., 2004; Grant, 2017). For example, since 1975, election officials in California have adopted a two-step quasi-random procedure that limits the ballot bonus considerably. First, a "randomized alphabet" is drawn and applied to ordering Congressional candidates on the ballot in the first Assembly District (all Assembly Districts in California are numbered). For the next district, the first candidate falls to the last position, and so on throughout the 80 districts (Padilla, 2018). The procedure does not eliminate the bonus entirely but reduces it significantly by rotating candidate positions across districts.

Finally, our results provide a warning about other potentially adverse political effects associated with proportional representation systems. The primacy effects described in our paper are politically consequential. The surprisingly strong support for PSL, which was at that time a member of the ruling coalition, fueled accusations of electoral fraud by the opposition. At some point, radical protesters occupied the headquarters of the State Election Commission.

Primacy effects in PR systems are worthy of further investigation, along with other effects and paradoxes involving PR systems that are equally or even more pernicious than other undesirable properties of SMD systems.[7]

Appendix 1

Descriptions of dependent variables used in the regressions in Table 2:

1. Main dependent variable whose impact on PiS and PSL's score is estimated

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[7] See Kurrild-Klitgaard (2008, 2013), Miller (2015), Felsenthal & Miller (2015), and Kaminski (2015, 2018).

PRIMACY (PRIMACY*)—equals 1 when PiS in Table 2 (PSL in Table 3) was listed first in the borough in the county council elections (#2) and 0 otherwise.

2. Variables related to county and province elections in 2014

Province-PiS—Percentage of votes for PiS in 2014's provincial council elections (#1).

Province-PSL—Percentage of votes for PSL in 2014's provincial council elections (#1).

County-list—The number of party lists in 2014's county council elections in MMD boroughs.

Turnout—Turnout in 2014 local elections.

3. Additional variables related to the local elections of 2014 and parliamentary elections of 2011

House-PiS_11—Percentage of national votes for PiS in 2011 elections to the Sejm (house).

House-PSL_11—Percentage of national votes for PSL in 2011 elections to the Sejm (house).

Mayor-PiS—Percentage of votes for PiS's candidate for Mayor in 2014 local elections (#4).

Mayor-PSL—Percentage of votes for PSL's candidate for Mayor in 2014 local elections (#4).

4. Demographic and territorial variables used in the models

Population—Log_{10} of the borough's population.

Urbanization—Percentage of urban population in the borough.

Note: The territorial variables West and South reflect the areas of Poland that between 1794 and 1818 were partitioned among Russia, Prussia, and Austria (later: Austro-Hungary). The partitions created substantial differences in many behavioral characteristics such as voting patterns that have survived until today.

North–Territory that Poland gained after WWII in the North and West.

West–Territory gained from the former Prussian partition.

South–Region of Galicia in Eastern Poland.

5. Other variables whose effects were small and statistically nonsignificant in all models

Turnout-house_11—Turnout in 2011 elections to the Sejm (lower House).

Turnout-Pres_10—Turnout in 2010 presidential elections.

The capital of the county in which a borough is located.

A suburb in one of 19 large Polish agglomerations.

A borough's budget.

The use of OLPR in the local election in 2010 in a borough.

The number of candidates in the County Council 2014 elections (#2) in a borough's MMD.

Percentage of votes for PiS's presidential candidate in the first round of 2011's presidential elections.

The difference in turnouts between the 2011 parliamentary and 2014 local elections.

Appendix 2

See Table 4.

Table 4 Votes and seats in 2014 local elections in Poland for major parties

Party	Elections								
	province		County		Borough		County-borough		Mayors
	Votes	Seats	Votes	Seats	Votes	Seats	Votes	Seats	
PiS	26.89	171 (30.81)	23.53	1514 (24.12)	11.57	2982 (7.88)	27.29	548 (32.35)	124 (5.01)
PO	26.29	179 (32.25)	12.32	758 (12.08)	3.78	773 (2.04)	27.27	491 (28.98)	54 (2.18)
PSL	23.88	157 (28.29)	21.42	1702 (27.12)	8.21	4355 (11.51)	2.48	16 (0.94)	258 (10.42)
SLD	8.79	28 (5.05)	5.79	226 (3.60)	3.04	643 (1.70)	9.04	27 (7.50)	22 (0.89)
Other	14.15	20 (3.60)	36.94	2076 (33.08)	73.19	29,089 (76.87)	33.92	512 (30.22)	2017 (81.49)
Total	100	555	100	6276	100	37,842	100	1694	2475

Note Votes are in percentages. Percentages of seats are in parentheses. "Other" denotes mostly non-partisan candidates. Some data are not available. Source: State Election Commission (2019). Acronyms: PiS (*Prawo i Sprawiedliwość—Law and Justice*); PO (*Platforma Obywatelska—Citizens' Platform*); PSL (*Polskie Stronnictwo Ludowe—Polish People's Party*); SLD (*Sojusz Lewicy Demokratycznej—Alliance of Democratic Left*)

Declarations

References

Alvarez, R. M., Sinclair, B., & Hasen, R. L. (2006). How much is enough? The "ballot order effect" and the use of social science research in election law disputes. *Election Law Journal, 5*(1), 40–56.

Augenblick, N., & Nicholson, S. (2016). Ballot position, choice fatigue, and voter behaviour. *Review of Economic Studies, 83*(2), 460–480.

Bartnicki, S. (2018). Pożytki z miejsca na karcie wyborczej w konkurencyjnych wyborach bezpośrednich organu wykonawczego gmin rozgrywanych w trybie open race. *Athenaeum, 57*, 78–100. https://doi.org/10.15804/athena.2018.57.05

Blom-Hansen, J., Elklit, J., Serritzlew, S., & Villadsen, L. R. (2016). Ballot position and election results: Evidence from a natural experiment. *Electoral Studies, 44*(December), 172–183.

Bowler, S., Donovan, T., & Happ, T. (1992). Ballot propositions and information costs: Direct democracy and the fatigued voter. *Western Political Quarterly, 45*(2), 559–568.

Brockington, D. (2003). A low information theory of ballot position effect. *Political Behavior, 25*(1), 1–27.

CBOS (2011). Wiedza i opinie Polaków o prawie wyborczym i mechanizmach kampanii. #105. https://www.cbos.pl/SPISKOM.POL/2011/K_109_11.PDF.

Chen, E., Simonovits, G., Krosnick, J. A., & Pasek, J. (2014). The impact of candidate name order on election outcomes in North Dakota. *Electoral Studies, 35*(September), 115–122.

Darcy, R. (1986). Position effects with party column ballots. *Western Political Quarterly, 39*(4), 648–662.

Däubler, T., & Rudolph, L. (2020). Cue-taking, satisficing, or both? Quasi-experimental evidence for ballot position effects. *Political Behavior, 42*(2), 625–652.

Devroe, R., & Wauters, B. (2020). Does high on the ballot means highly competent? Explaining the ballot position effect in list-PR systems. *Acta Politica, 55*(3), 454–471.

Faas, T., & Schoen, H. (2006). The importance of being first: Effects of candidates' list positions in the 2003 Bavarian state election. *Electoral Studies, 25*(1), 91–102.

Felsenthal, D. S., & Miller, N. R. (2015). What to do about election inversions under proportional representation? *Representation, 51*(2), 173–186.

Flis, J. (2014). *Złudzenia wyboru*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.

Flis, J. (2015). Efekt książeczki. In Flis, J., Frydrych, A., Gendźwiłł, A., Michalak, B., Rutkowski, J., Rychard, A., & Zbieranek, J. (eds). *Co się stało 16 listopada? Wybory samorządowe 2014,* 41–52. Warszawa: Fundacja im. Stefana Batorego.

Gendźwiłł, A., & Raciborski, J. (2014). Jak głosują wyborcy w warunkach preferencyjnych list wyborczych: Przypadek Polski. *Decyzje, 22*(2), 47–70.

Gendźwiłł, A., Cześnik, M., Flis, J., Materska-Sosnowska, A., Michalak, B., Pietrzyk, P., & Zbieranek, J. (2016). *Nieważne głosy, ważny problem: Wyniki badania kart do głosowania z wyborów do sejmików województw 2014*. Warszawa: Fundacja im. Stefana Batorego. http://www.batory.org.pl/upload/files/Programy%20operacyjne/Masz%20Glos/Niewazne%20glosy%20wazny%20problem_Internet2.pdf.

Gendźwiłł, A., & Steyvers, K. (2021). Guest editors' introduction: Comparing local elections and voting in Europe: Lower rank, different kind… or missing link? *Local Government Studies, 47*(1), 1–10. https://doi.org/10.1080/03003930.2020.1825387

Geys, B., & Heyndels, B. (2003). Ballot layout effects in the 1995 elections of the Brussels' government. *Public Choice, 116*(1–2), 147–164.

Główny Urząd Statystyczny (2017). *Rocznik Statystyczny Rzeczypospolitej Polskiej 2017*. Warszawa. stat.gov.pl.

Grant, D. P. (2017). The ballot order effect is huge: Evidence from Texas. *Public Choice, 172*(3–4), 421–442.

Gulzar, S., Robinson, T. S., & Ruiz, N. A. (2020). How campaigns respond to ballot position: A new mechanism for order effects. *Journal of Politics* (forthcoming).

Ho, D. E., & Imai, K. (2008). Estimating causal effects of ballot order from a randomized natural experiment: The California alphabet lottery, 1978–2002. *Public Opinion Quarterly, 72*(2), 216–240.

Jankowski, M. (2016). Voting for locals: Voters' information processing strategies in open-list PR systems. *Electoral Studies, 43*, 72–84.

Jankowski, M., & Frank, T. (2021). Ballot position effects in open-list PR systems: The moderating impact of postal voting. *Acta Politica*. https://doi.org/10.1057/s41269-020-00192-2

Johnson, A. J., & Miles, C. (2011). Order effects of ballot position without information-induced confirmatory bias. *British Politics, 6*(4), 479–490.

Kaminski, M. M. (2015). Empirical examples of voting paradoxes. In J. C. Heckelman & N. R. Miller (Eds.), *Handbook of social choice and voting* (pp. 367–387). Cheltenham: Edward Elgar Publishing. DOI https://doi.org/10.4337/9781783470730.00029

Kaminski, M. M. (2018). Spoiler effects in proportional representation systems: Evidence from eight Polish parliamentary elections, 1991–2015. *Public Choice, 176*(3–4), 441–460. https://doi.org/10.1007/s11127-018-0565-x

Kim, N., Krosnick, J., & Casasanto, D. (2015). Moderators of candidate name-order effects in elections: An experiment. *Political Psychology, 36*(5), 525–542.

King, A., & Leigh, A. (2009). Are ballot order effects heterogeneous? *Social Science Quarterly, 90*(1), 71–87.

Koppell, J. G. S., & Steen, J. A. (2004). The effects of ballot position on election outcomes. *Journal of Politics, 66*(1), 267–281.

Krosnick, J. A., Miller, J. M., & Tichy, M. P. (2004). An unrecognized need for ballot reform: The effects of candidate name order on election outcomes. In *Rethinking the vote: the politics and prospects of American election reform*, 51–73.

Kurrild-Klitgaard, P. (2008). Voting paradoxes under proportional representation: Evidence from eight Danish elections. *Scandinavian Political Studies, 31*(3), 242–267.

Kurrild-Klitgaard, P. (2013). Election inversions, coalitions and proportional representation: Examples of voting paradoxes in Danish government formations. *Scandinavian Political Studies, 36*(2), 121–136.

Lutz, G. (2010). First come, first served: The effect of ballot position on electoral success in open ballot PR elections. *Representation, 46*(2), 167–181.

Marcinkiewicz, K. (2014). Electoral contexts that assist voter coordination: Ballot position effects in Poland. *Electoral Studies, 33*(March), 322–334.

Matsusaka, J. (2016). Ballot order effects in direct democracy elections□. *Public Choice, 167*(6), 257–276.

Meredith, M., & Salant, Y. (2013). On the causes and consequences of ballot order effects. *Political Behavior, 35*(1), 175–197.

Miller, J. M., & Krosnick, J. A. (1998). The impact of candidate name order on election outcomes. *Public Opinion Quarterly, 62*(3), 291–330.

Miller, N. R. (2015). Election inversions under proportional representation. *Scandinavian Political Studies, 38*(1), 4–25.

Orr, G. (2002). Ballot order: Donkey voting in Australia. *Election Law Journal, 1*(4), 573–578.

Oscarsson, H., & Rosema, M. (2019). Consideration set models of electoral choice: Theory, method, and application. *Electoral Studies, 57*(February), 256–262.

Pachón, M., Carroll, R., & Barragán, H. (2017). Ballot design and invalid votes: Evidence from Colombia. *Electoral Studies, 48*(August), 98–110.

Padilla, A. (2018). Randomized alphabet. Elections and voter information. https://www.sos.ca.gov/elections/randomized-alphabet/. Accessed on October 18, 2021.

Passarelli, G. (2020). *Preferential voting systems*. Springer.

Pierzgalski, M., Górecki, M., & Stępień, P. (2020). Ballot paper design and vote spoiling at Polish local elections of 2014: Establishing a causal link. *East European Politics and Societies, 34*(3), 611–636.

Raciborski, J. (1997). *Polskie wybory: Zachowania wyborcze społeczeństwa polskiego w latach 1989–1995*. Scholar Books.

Raunio, T. (2005). Finland: One hundred years of quietude. In M. Gallagher & P. Mitchell (Eds.), *The Politics of Electoral Systems* (pp. 473–493). Oxford University Press.

Reif, K., & Schmitt, H. (1980). Nine second-order national elections—A conceptual framework for the analysis of European election results. *European Journal of Political Research, 8*(1), 3–44.

Seib, J. D. (2016). Coping with lengthy ballots. *Electoral Studies, 43*, 115–123.

Shugart, M. S., Valdini, M. E., & Suominen, K. (2005). Looking for locals: Voter information demands and personal vote-earning attributes of legislators under proportional representation. *American Journal of Political Science, 49*(2), 437–449.

Song, B. K. (2019). Misleading ballot position cue: Party voting in Korea's nonpartisan local elections. *Electoral Studies, 58*, 1–11.

State Election Commission (Państwowa Komisja Wyborcza). (2019). https://pkw.gov.pl/.

Van Erkel, P. F. A., & Thijssen, P. (2016). The first one wins: Distilling the primacy effect. *Electoral Studies, 44*, 245–254.

Webber, R., Rallings, C., Borisyuk, G., & Thrasher, M. (2014). Ballot order positional effects in British local elections, 1973–2011. *Parliamentary Affairs, 67*(1), 119–136.

Wilson, W. (1912). Hide-and-seek politics. *The North American Review, 191*, 585–601.