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Country Music: Strategic Incentives of Competing Voters

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Country vs. Music: Strategic Incentives for Competing Voters *

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Abstract

We empirically analyze the strategic proofness of a positional voting system. We exploit the setting of the Eurovision Song Contest, where each country participates both as a candidate — with an artist and a song — and with a set of voters, — including jury members, and the popular vote – and where voters attribute points according to a modified version of the Borda rule. Despite voters being forbidden from voting their country's song, we find evidence of strategic behavior in the competition final, particularly among industry experts (jury members), who tend to attribute lower votes to close competitors of their country's candidate. By matching Eurovision voting data to Spotify data on success and musical features of each competing song, we show that this behaviour is not explained by intrinsic quality or commercial success of individual songs, but is rather driven by strategic considerations. Strategic voting potentially affects any settings where voters have an interest in specific candidates being elected, a relevant example being the election of members of international bodies: our analysis provides empirical evidence that forbidding votes for own candidates is not enough to neutralize strategic behavior.

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1 Introduction

"*My scheme is intended for only honest men*"

Jean-Charles de Borda (Black, 1958, p. 182)

Current research investigates the characteristics of positional voting systems which are deemed as viable alternatives to prevailing voting systems, particularly the plurality system in which each voter selects exactly one option among those available. In positional voting systems all options are considered and assigned distinct values, allowing for a better representation of voter preferences.

The rationale behind considering these systems is the necessity to explore innovative solutions aimed at enhancing the efficiency and representativeness of the electoral process. [1] This necessity stems from the observation of heightened polarization in the political arena.

In recent times, political life has been rousing in many countries due to unexpectedly close outcomes in elections on issues of significant relevance, such as the Brexit referendum in the U.K. or the U.S. presidential elections 2016. However, witnessing voter reactions to the election results has also been disheartening. The 2021 rampage at Capitol Hill and the 2023 incidents at the Federal Parliament of Brasilia exemplify the unfortunate and dramatic consequences of intense electoral competition.

Harsh polarization in the electorate could stem from the voting system itself. In a recent paper, Alós-Ferrer and Buckenmaier (2021) argue that commonly used methods based on plurality voting are biased in favour of polarizing outcomes, and may misrepresent voter preferences. The reason is that the knowledge extracted by these methods is overly simplified.

In this context, positional voting rules which, beyond considering voters' first or even second preferences only, also consider other alternatives, are less likely to result in extreme outcomes. Adopting these rules thus allows for considering options acceptable to a large share of the electorate, and could prevent the voting system from systematically biasing the poll results toward more knife-edge outcomes.

The most widely known positional voting system is probably, the Borda (1784) rule or Borda Count (BC), which permits voters to express preferences for more than one of available options. The BC assesses low-ranking alternatives and preference intensities, as voters must provide complete rankings by assigning a score to each potential alternative.

This system is the main focus of our analysis because, being adopted in an important music contest, the Eurovision Song Contest (ESC), it provides us with a real-world example of a large election which uses a positional rule. In particular, in the ESC, the contest's ranking and winner are determined through a mechanism similar to BC. Voters must in fact provide entire rankings by assigning a score to each song participating in the contest, except their own country song.[2]

We make use of ESC data to discuss the main criticism of the BC rule, i.e. the fact that this system is not strategy proof. The BC method also violates Arrow's axiom of independence of irrelevant alternatives, but this issue is now deemed to be of secondary importance. Maskin (2024) showed in fact, in a recent work, that this Arrowian criterion is too stringent, and that BC satisfies a weaker version of the independence axiom of irrelevant alternatives. Hence, we focus strategic proofness.

This desirable property of voting requires that no voter can benefit from insincerely reporting his preferences, for any given distribution of the other agents' votes (Kube and Puppe, 2009). In order to test BC strategy proofness, we check for the presence of strategic voting in ESC, and try to assess the importance of this drawback which could outweigh its benefits in reducing polarizing outcomes.

As it is well known in social choice theory, strategic proofness is an issue for social preference formation in any system because people usually engage in strategic voting.[3] As noted by Dasgupta and Maskin (2020),

[1] See Lachat and Laslier (2024) for a discussion of the problems posed by plurality rule, and of the potential advantages of relying on alternative voting systems. Sullivan (2023) provides some data on voter preferences over alternative voting systems.

[2] The Borda rule employs uniform linear scores, whereas ESC adopts an alternative heterogeneous non-linear approach to convert rankings into scores.

[3] Strategic voting is so ingrained in politics that a letter of Pliny the Younger, which dates back to around 100 AD, discusses a case of manipulation of preferences in a voting situation in the Roman senate.

strategic voting is troublesome because if a voting rule is not strategy-proof, the inputs used in the social choice process (i.e. voter preferences) are distorted, and so are its outcomes.

Nevertheless, all social choice functions, including BC, are susceptible to strategic manipulation, particularly in scenarios involving more than two alternatives (Smith, 1999). However, this issue has specially hindered the broader acceptance of the BC, whose adoption, thus far, has been limited to elections in sparsely populated countries. [4], to sport and show contests (for instance, the ESC or the choice of the best football or baseball player), to the selection of specific alternatives in some institutions (for example, for the selection by the EU of the hosting city of the European Medicines Agency) and lastly, for the elicitation of collective preferences in experiments of participatory democracy (Sy et al. (2022) and Laruelle (2021)).

To our knowledge, no previous work has empirically studied the impact of strategic voting in large BC elections. We conduct this analysis by leveraging an integrated dataset, which combines information from the ESC and Spotify charts databases. This allows us to study strategic manipulation in a real-world context without relying on laboratory experiments.

The ESC competition is relevant for our purpose because each participating country votes for singers (or groups of singers) from all the other involved countries. Interestingly, for our analysis, the specific rule of the ESC prohibits voting for one's own country's song. It is reasonable to assume that voters consistently consider their country's song the top choice. This provides a unique opportunity to examine the extent to which participants engage in strategic voting to favour their country/song.

Furthermore, the specific features of the contest are specially suited for the analysis of the role played by information revelation and by the coordination issues in strategic voting.

Since 2008 in fact, the ESC includes two sequential stages: two semi-finals precede the contest's final.

In the semi-final stage, voters know little about the preferences and strategies of other voters and are less likely to vote strategically; by comparing semi-final votes with revealed preferences based on the Spotify national charts, we can evaluate the extent to which sincere voting prevails in this context.

However, in the final stage, voters can rely on the information disclosed by media about the songs participating in the semifinals to elaborate a voting strategy (data on votes in the semi-finals are not made public). Hence, by comparing the voting records between the two stages of the game, we can assess the impact of strategic manipulations when better knowledge of the preferences of other voters becomes available. Our analysis shows that information revealed in the semi-finals is specially important for the popular votes and eases the strategic behaviour of voters.

A second feature of the ESC which makes it an interesting application of positional voting and the Borda rule, is that the final ranking and the winning song are chosen based on the voting expressed by a committee of experts and a popular jury using televoting. This allows us to compare the outcome of a large election and of a small election.

We prove that strategic manipulation in positional voting could be a concern, particularly in small elections. Interestingly enough, in the ESC contest, strategic behaviour primarily influences the jury of music industry professionals, while the voting patterns of the popular jury remain almost consistent across both stages.

This pattern aligns with our expectations: sincere voting is more common than strategic voting in large-scale elections. Strategic voting, by its nature, involves a significant effort to gather detailed information about the candidates' personalities, backgrounds, and stances on various issues.

Beyond this, it also requires understanding the preferences and strategies of other voters to respond strategically. The complexity and effort involved in this process increase with the number of voters. This high effort is a deterrent to strategic voting for the popular jury.

Conversely, the dynamics are different for the jury of music industry professionals. This group's smaller scale and perhaps more focused nature reduce the cost and complexity of strategic voting. As a result, these professionals are more likely to engage in strategic manipulation during the voting process.

In the light of previous results we argue that positional voting could serve as an effective method for aggregating preferences in large-scale elections, owing to its nuanced approach to capturing voter preferences.

[4]Nauru and Kiribati adopt Borda voting in the national polls, while in Slovenia it is used to choose the representatives of the Hungarian minority in the national parliament.

In adopting this kind of voting system however, one should be specially aware of the effects of information made available at different stage of the voting process and by role played by this preliminary stages as coordination devices foe voters,

This paper is structured into the following sections: Section 2 reviews the relevant literature, Section 3 provides an overview of the ESC voting rule, Section 4 outlines the empirical strategy and data used, Section 5 presents the empirical results, and Section 6 concludes.

2 Related Literature

Seminal contributions by Gibbard (1973) and Satterthwaite (1975) have shown that in any voting system, some voters may try to manipulate the outcome of the elections using strategic voting. This behaviour is the subject of a rich field of research in political economy, which seeks to understand its underlying logic (see, for example, Myerson and Weber (1993), Cox (1997), Fey (1997), Myatt (2007) and Palfrey (1989)).

Our paper contributes to the empirical literature, reviewed in the papers by Pons and Tricaud (2018) and Eggers and Vivyan (2020), whose focus is assessing the extent to which voters behave strategically, by considering strategic voting in a context different from majority rule. We analyze an election where a slightly modified version of the Borda rule is adopted. In particular, we focus on the ESC, a rare example of a large election where this voting rule is applied, and analyze how strategic voting impacts its outcomes for the first time.

Borda's rule has induced voters to make strategic decisions instead of voting sincerely. For this reason several authors have studied strategic manipulation in this context, both from a theoretical point of view,[5] and from an empirical point of view, mostly using laboratory experiments[6] Thus, our results are novel because they are based on real-world data and a voting process with considerable participation.

Relying on the specific features of the ESC, we can compare the outcomes of the televoting, where the number of voters is high, with the voting results within the committee of experts who participate in defining the winner. Consequently, we can check for strategic voting in a small election and leverage the difference in the number of voters to discuss the impact of the costs incurred by a strategic voter and elaborate on the optimal response to the strategy adopted by the remaining voters.

The behaviour of committee members is also investigated in several papers, which focus on the role played by different biases and strategic behaviour in determining the outcomes of the voting process. This literature (see, e.g., Johnson and McCarthy (2022)) analyzes different circumstances where committee members' votes are relevant, mainly in sports competitions and awards.

Many scholars have examined voting behaviour in the Eurovision Song Contest[7], providing diverse explanations for both the public and jury voting that determines the contest winner (Haan et al. (2005)). The explanations are directly linked to specific features of the songs and the artists[8], or indirectly related to factors such as the order of performances (Haan et al. (2005)) or the level of exposure of an artist or song to the public (Verrier (2012)). Other explanations highlight the presence of voting blocs between voters of different countries (Fenn et al. (2006) and Dekker (2007)), or biases in voting behaviour primarily attributed to cultural and political issues, as well as geographic proximity[9]. However, none of these analyses explicitly considers the role of strategic voting, as we do in the present paper.

One exception is the paper by Stockemer et al. (2018), which is the closest to ours. These authors identify four types of voting behaviour: sincere, strategic, bandwagoning, and other behaviours. They use a survey on a small sample of respondents to check for discrepancies between preferences and declared votes. Their results indicate a limited use of strategic voting and a more widespread adoption of bandwagoning and sincere

[5]See for instance, Black (1976), Ludwin (1978), Saari (1990), Felsenthal (1996), Favardin et al. (2002), Barbie et al. (2006) and Lehtinen (2007).

[6]See Forsythe et al. (1996), Kube and Puppe (2009), and Bassi (2015).

[7]See Budzinski and Pannicke (2017) for an overview of this literature.

[8]See, for instance, Haan et al. (2005), Ginsburgh and Noury (2008), Spierdijk and Vellekoop (2009), and Budzinski and Pannicke (2017).

[9]See Haan et al. (2005), Blangiardo and Baio (2014), and Budzinski and Pannicke (2017).

voting. However, the existence of a significant fraction of voters whose behaviour remains unexplained and of a strategic effect in bandwagoning allows us to suppose that the role of strategy might be underestimated.

Our results support this hypothesis, and despite relying on indirect evidence of strategic voting, it might offer a more accurate assessment of the phenomenon compared to the limited sample in Stockemer et al. (2018). The extensive data in our observation set enables us to analyze the issue more thoroughly.

3 The Eurovision Song Contest

The Eurovision Song Contest (ESC) is a rare example of large-scale elections where a version of the Borda Count (BC) is employed to aggregate voter preferences. This unique characteristic places it at the centre of our analysis, serving as our primary data source. Consequently, we need to delve into how the ESC operates intricacies.

The ESC is organized by the European Broadcasting Union (EBU), with approximately 40 countries participating. Traditionally, the host country for the ESC is the winner of the previous edition.

According to the Rules of the ESC (Eurovision, 2024), each country's broadcaster "shall choose its performer through a national selection organized by each Participating Broadcaster. The national selection is organized under the sole responsibility of the Participating Broadcaster in question."

A maximum of 44 countries can participate in the ESC, with 26 countries competing in the final. In the last, there are 6 guaranteed places, one for the Host Country and one for each of the members from France, Germany, Spain, Italy and the United Kingdom, the "Big Five".

The songs must have a length equal to or less than 3 minutes. This rule applies only to the version performed during the live shows. Competing songs in a given year's contest must not have been released commercially before the first day of September of the previous year to be eligible.

The scoring system of the Eurovision Song Contest (ESC) is determined by the votes of two distinct groups:

The National Audiences: The audience votes for their preferred songs in each participating country, excluding their own country's entry. The song receiving the most votes is ranked first, the second-highest is ranked second, and so forth, down to the last song.

The National Juries: Each participating country appoints a National Jury consisting of 5 members. These jury members rank the songs from their most to least favourite. Every song must receive a unique ranking, and abstentions are not permitted. Like the National Audiences, the juries cannot vote for the song from their own country and are not allowed to assign the same rank to multiple songs

The contest entails two stages: a first stage with two Semi-Finals which select 10 songs each, and a second stage, the Final, where the songs chosen in the Semi-Finals and the songs of the "Big Five" countries (France, Germany, Italy, Spain and the UK) compete. It is important to notice that Semi-final results are not made public before the Final.

In both the Semi-Finals and the Final, the score attributed by National Audiences in each country shall be determined as follows:

- 12 points to the song obtaining the best rank
- 10 points to the song obtaining the second-best rank
- 8 points to the song obtaining the third-best rank
- 7 points to the next and down to 1 point for the song, obtaining the tenth-best rank.

The scores attributed by National Juries are calculated in the same way.

The voting system described above is currently adopted in the ESC, but different systems were adopted in the past. Since 2004, the organizing committee has introduced several changes in the semifinal structure, voting methods, and point system. A better view of how it changed over the years can be seen in table **??**

From 2004 to 2007, the event employed a single semifinal round where the outcome was determined solely by televoting. This period marked the beginning of a more interactive approach, engaging the audience in the decision-making process.

In 2008, a notable shift occurred with introduction of two semifinals, diversifying the selection process. This year also marked the first instance of jury involvement, albeit limited, where the jury selected the 10th qualified song, indicating a move towards a more balanced approach between audience preferences and expert opinions. Despite this, the final vote remained exclusively reliant on televoting.

The period from 2009 to 2015 saw the continuation of the two-semifinal structure with a primary reliance on televoting. However, the final voting method transitioned to a 50/50 split between televoting and jury voting. This period was significant for its approach to aggregated results, blending public opinion with expert judgment in the final decision.

A further evolution was observed from 2016 to 2022. During these years, the semifinal and final rounds adopted the 50/50 televoting and jury voting method. Additionally, this era introduced a dual set of points, reflecting a more nuanced approach to scoring. The separate presentation of televoting and jury results added a layer of transparency and complexity to the scoring process.

From 2023, the event has retained the two-set point system and the 50/50 split in the final voting. However, a significant change was made to the semifinal voting, which reverted to a televote-only system. This change suggests a dynamic balancing act between audience engagement and expert judgment, continually adapting to the evolving context of the event.

These changes produced different data series used in our empirical analysis and are described in Section 4.

4 Background on strategic voting

Consider an example of Borda elections where four voters and four alternatives are denoted with a letter from A to D. In this setting, the alternative ranked 4th by a voter receives 1 point, the alternative ranked 3rd receives 2 points, the alternative in the 2nd place receives 3 points, and the most preferred alternative receives 4 points. The table below reports the distribution of voter preferences in the electorate.

Voter 1	Voter 2	Voter 3	Voter 4
A	B	C	D
B	A	A	B
C	C	D	A
D	D	B	C

If voters vote sincerely, the following results are obtained:
A Points $4+3+3+2=12$
B Points $3+4+1+3=11$
C Points $2+2+4+1=9$
D Points $1+1+2+4=8$
and alternative A should prevail.

However, people may not cast their votes according to preferences and choose to vote strategically instead. This occurs when voters want to maximize expected utility. In this case, a voter's payoff is influenced by her vote only if it changes the election's winner. Therefore, each voter must estimate the probability that any given pair of alternatives is in a sufficiently close race for first place. By casting her ballot, the winning alternative switches from one to the other (Myerson and Weber (1993)).

In the previous example, the race between alternatives A and B is very close. Voter 2 is positively likely to be pivotal in the election outcome if the remaining voters vote sincerely. Consequently, if Voter 2 maximizes expected utility, she votes strategically, ranking in the last position alternative A, the strongest competitor to her most preferred alternative, i.e. B. In this way, the score of A decreases to 10 and alternative B prevails in the election.

Note that in the ESC context that we study, the rule adopted is not exactly a Borda rule: as described in Section 3, points are assigned based each voter's ranking, but with a specific distribution which somehow resembles the related *Dowdall system* (Fraenkel and Grofman, 2014) in that, compared to the Borda rule, it favours candidates who often rank in the top positions of individual rankings.

The manipulability of the Borda rule is not a novelty — Borda himself, when the rule he had proposed was accused of not being robust to strategic behavior, excused it by candidly admitting it was meant for "honest men". More in general, by Gibbard's theorem (Gibbard, 1973), any non–dictatorial social choice rule will be prone to strategic voting. However, the empirical setting we study, the Eurovision Song Contest (ESC) presents one feature that makes it of specific interest: a clear association between voters and candidates, in that each participating country has a set of voters (which includes both the popular vote and a jury) *and* a song competing. Hence, there is an obvious expectation that voters from a given country might want to favour the song from their own country. Precisely to counteract this obvious bias, the rules dictate that any country's voters cannot vote for that country's song. However, as will be shown, this is far from neutralizing opportunities for strategic voting.

Indeed, voters are forbidden from explicitly supporting their assumingly the preferred option, but they have plenty of chance of disadvantaging rival options. In principle, *all* options rival one's preferred song. However, to the extent that the final position (and not the number of points — be it absolute or relative to participants) determines the success of a song, the goal of a strategic voter will be to disadvantage candidates that are *close* rivals, such that changing their points tally by a small amount will possibly result in them swapping positions with one's preferred option.

Indeed, in a standard elections only the winning candidate ultimately attains a given position and any power or privilege attached to it, while the others obtain no benefit, regardless of their relative success. Instead, in the ESC it is highly likely that voter from a given country will want to favor that country's song to some extent *regardless* of its actual winning chances. As a consequence, analyzing the ESC requires a different approach from the typical one in the literature, which has for instance focused on testing Duverger's Law (Duverger, 1959), predicting that in plurality elections, only the two strongest candidates receive the votes of strategic voters who divert support from their most preferred candidates if their chances of winning are low.

As the literature on strategic voting shows, multiple equilibria emerge, posing a problem for strategic voters who must decide which equilibrium to focus on. A strategic coordination mechanism is required to coordinate voter actions (see Granzier et al. (2023)). In this context, opinion polls (Fey, 1997; Myatt, 2007)) or past election outcomes (Forsythe et al., 1993) disclose the information needed for voters to converge on the candidates with the highest chances of winning the election and can serve as a coordination device. As already argued, the case of the ESC is particular because behind the voting structure, it is a contest, not an election, so even position improvements that do not result in getting the first position in the ranking are likely to be desirable and trigger strategic incentives somehow analogous to those characterized by Duverger's Law.

Clearly, to the extent that the goal of voters is to have their nation's song to improve its positioning in the ranking, a song's main rivals are simply songs in the adjacent ranking positions, and more precisely, songs which are likely to obtain a similar number of points. Our investigation will precisely focus on votes cast by any voter for close songs, according to some measure of distance, to the song from that voter's nation. Notice that, for a voter from country i, the most obvious incentive would be to penalize a song from a country j, which is just above in the rankings to favour a position change. At the same time, however, a voter from country j might anticipate this and penalize the song from country i precisely to avoid this. Hence, our main variable of interest is the *absolute* distance between points obtained by each song — we will still control whether a voter's song is above or below another.

Note that if voters were entirely opportunistic, assigning votes *only* based on the chance to improve the position of their country's song, the mechanism would break down to a perfectly symmetric multiplayer discoordination game, where the only Nash equilibrium envisages all songs tied with the same points (as any song with more points would be immediately penalized). This is clearly not the case in the ESC, where, on the opposite, winning songs often gain significantly more points than runner-ups. We assume that voters'

utilities include an element of honesty, by which they have sincere assessments of each song's merits — presumably correlated across voters — and soffer a utility loss by misstating them. That is, their utility will be of the form $u(r_i, \delta_0, \ldots, \delta_{i-1}, \delta_{i+1}, \ldots, \delta_N)$ where r_i is their country's song's ultimate position in the rankings, δ_j measures the difference between points awarded to song j by voter i and points the voter honestly thinks the song deserved, and u is decreasing in all its arguments (and symmetric in the last $N-1$ arguments). Hence, the resulting votes will represent a compromise between trying to decrease r_i (strategic component) by at the same time limiting δ_j (taste for honesty).

Note that the game would be a zero–sum game if we limited the analysis to the r_i term — as each change of position implies a gain and a symmetric loss for the two involved countries/songs. It, however, ceases to be so when we consider that each increase of δ_j results in a net utility loss which is not compensated by any gain — as a possible decrease in r_i coincides with an increase in r_j for some other agent. Hence, the game is overall a social dilemma where agreeing to report preferences truthfully would maximize aggregated welfare. In fact, from the mathematical point of view, the model resembles several other social dilemmas found in the literature. For instance, if we limit to two players and assume that the two songs' quality is considered equal by both voters, our model can remind the one by Tullock (2001). Note that absent any randomness, it would not be possible for the two voters to both apply strategic voting in Nash equilibrium: the one who does not win will rather report preferences truthfully (and a similar argument applies to the version with multiple voters and heterogeneous song quality). Hence, the only has corner solutions except if we consider mixed strategies, as in a continuous version of matching pennies. In this case, however, the general game has no closed form solution — for instance, depending on the parametrization (specifically, on the functional form of the taste of honesty), the best replies in equilibrium can increase or decrease in the other agent's strategic play.

The circumstances described above disclose the information needed for coordination and may induce a change in voter behaviour resulting from strategic issues. The differences with the outcomes of the ESC final provide a measure of this change and the extent to which voters vote strategically. As a consequence, they are our main variables of interest. They are regressed on a set of explanatory variables: the distance between the scores (or the position in the ranking) obtained by the song of country j and the song of country i in the semi-final (or in the final). In the presence of strategic voting, in fact, the closer the race between the song of country i and the song of country j in the semi-final (or in the final), the more prominent the negative gap between the score (or the ranking) of the semi-final of the song of country i and the score obtained by this song from the National Audience or the National Jury of country j.

4.1 Data description

We are considering three datasets.

4.1.1 Songs

This dataset contains data that allow us to have a comprehensive overview of Eurovision songs from 2008 to 2023, encompassing a diverse range of musical characteristics and demographic data across 609 observations. The variables examined include technical aspects of music composition, such as danceability, energy, key, and tempo, as well as contextual features like the duration of songs, the percentage of female performers, and the size of performing groups. This dataset offers an extensive quantitative analysis, capturing the intricate nuances of Eurovision songs. The variables are quantified in terms of mean and standard deviation, providing a statistical summary that reflects the diversity and complexity inherent in the musical and performance styles of the Eurovision entries. Table 1 provides an overview of the Song Dataset.

4.1.2 Votes

The Votes Dataset contains data about votes and their breakdown, allowing us to comprehensively understand Eurovision votes from 2008 to 2023. In table 2, we provide an excerpt of the 2022 final for the first country in alphabetical order. The columns show key voting details: the rankings from the public televote

Table 1: Descriptive Statistics of Eurovision songs between 2008 and 2023

Variable	**Mean**	**SD**
Danceability	0.56	0.14
Energy	0.70	0.18
Key	5.40	3.58
Loudness	-5.92	2.17
Mode	0.47	0.50
Speechiness	0.06	0.05
Acousticness	0.21	0.24
Instrumentalness	0.00	0.03
Liveness	0.19	0.13
Valence	0.46	0.22
Tempo (BPM)	121.80	27.18
Time Signature	3.92	0.33
Is Explicit	0.01	0.11
Duration (m:ss)	3.23	0:14
Female Percentage	0.45	0.48
Size of Group	1.64	1.37
Number of observations: 609		

Notes:

and the professional jury, along with the points given by both. It even breaks down the votes of each of the five jury members (j1 to j5). We provide in the appendix in table 11 an example of the voting matrix from 2008 where no breakdowns were shared from the ESC.

Summing up, for the score's empirical analysis, we have split the dataset into four dimensions, which include information with different levels of detail which are available for different periods, namely:

1. Aggregate scores awarded by audience and jury during the final for the years 1998-2023;
2. Aggregate scores awarded by audience and jury during the final and the semi-finals for the years 2008-2023;
3. Scores awarded by the audience during the final and the semifinals, for the years 2016-2023;
4. Scores awarded by the jury during the final and the semifinals for the years 2016-2023;

Table 2: Example of votes breakdown in the final of 2022

Voter Country	Receiving Country	Televote Rank	Jury Rank	Jury Points	Televote Points	j1	j2	j3	j4	j5
Albania	Armenia	17	7	4	0	8	5	9	9	10
Albania	Australia	21	13	0	0	12	13	23	16	7
Albania	Azerbaijan	18	8	3	0	6	17	17	12	6
Albania	Belgium	14	9	2	0	13	7	8	11	16
Albania	Czech Republic	24	21	0	0	19	14	21	20	18
Albania	Estonia	6	12	0	5	10	8	24	17	12
Albania	Finland	9	16	0	2	21	19	5	19	20
Albania	France	22	24	0	0	23	23	18	23	21
Albania	Germany	20	17	0	0	9	16	16	10	19
Albania	Greece	1	11	0	12	15	10	19	8	8
Albania	Iceland	25	14	0	0	14	21	7	13	14
Albania	Italy	3	1	12	8	1	2	2	1	2
Albania	Lithuania	19	15	0	0	16	18	6	14	23
Albania	Moldova	10	23	0	0	25	22	14	22	24
Albania	Netherlands	5	5	6	6	5	6	11	3	3
Albania	Norway	16	20	0	0	17	20	15	18	15
Albania	Poland	13	19	0	0	11	15	25	21	17
Albania	Portugal	15	10	0	0	20	12	13	5	11
Albania	Romania	12	25	0	0	18	25	22	25	22
Albania	Serbia	8	22	0	3	24	24	12	24	25
Albania	Spain	4	6	5	7	3	9	10	7	9
Albania	Sweden	11	3	8	0	7	1	4	4	5
Albania	Switzerland	23	18	0	0	22	11	20	15	13
Albania	Ukraine	2	4	7	10	4	3	3	6	4
Albania	United Kingdom	7	2	10	4	2	4	1	2	1

Note: This table provides a detailed breakdown of the voting in the Eurovision 2022 final. Each row represents a voting country's allocation of points to various receiving countries. Columns include the Televote rank, jury rank , jury points, televoting points, and individual jury member votes (j1 to j5).

4.1.3 Spotify Charts

The dataset contains the Spotify platform's top 200 songs per streaming per country. For each song, the dataset includes the track's rank, title, artist, and three additional metrics: the peak position the track has achieved, its previous rank, and its current streaming streak, which appears to reflect the number of consecutive days the track has maintained its position within the chart. More importantly, the total number of streams for each track is provided, indicating the song's overall popularity.

Overall, the dataset provides a structured glimpse into the music consumption trends within each country on each date, offering valuable insights for market analysis, artist popularity, and music streaming behaviours.

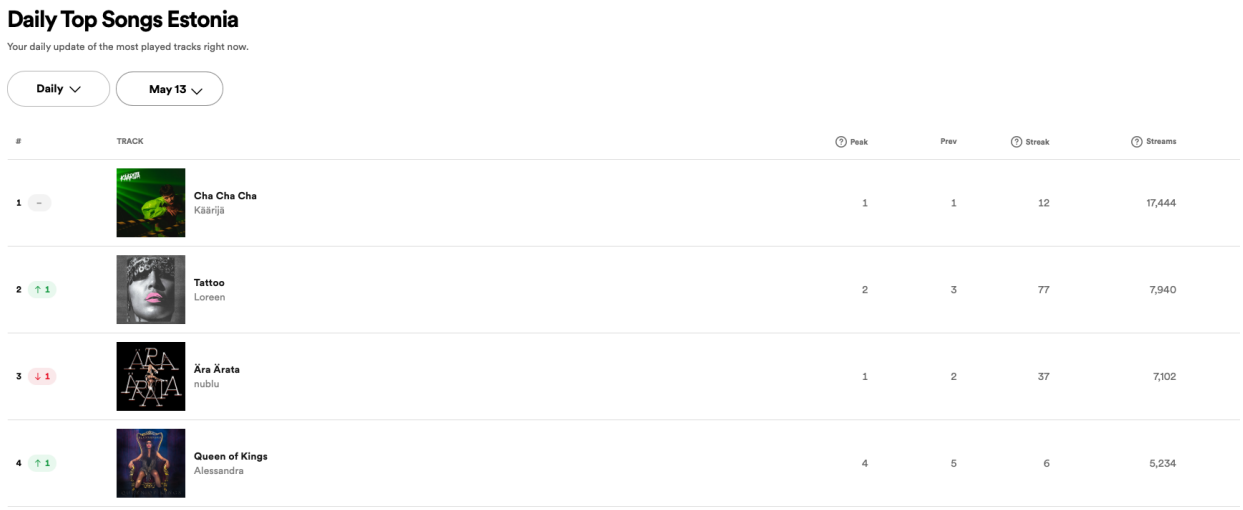

Figure 1: Spotify's Charts Data

Table 3: Charts sample for Austria on 1st May 2023

rank	Artist	Track Name	Procucer	Peak Rank	Previous Rank	Days on Chart	Streams
1	David Kushner	Daylight	Miserable Music Group, LLC	1	1	18	36366
2	Bonez MC, Gzuz	Cinnamon Roll	187 Strassenbande	1	2	11	28243
3	Udo Lindenberg, Apache 207	Komet	Warner Music Central Europe	2	3	102	25086
4	RAF Camora, Luciano	All Night	Indipendenza	1	4	33	24939
5	Eminem	Mockingbird	Aftermath	2	6	205	23492
...	...	...	...	...	...	...	...
196	Stephen Sanchez, Em Beihold	Until I Found You	Republic Records	26	-1	117	5298
197	Rihanna, Calvin Harris	We Found Love	Def Jam Recordings	67	179	65	5295
198	Linkin Park	In the End	Warner Records	6	-1	894	5281
199	t-low, Miksu / Macloud	We Made It	t-low	1	-1	354	5276
200	Pitbull, Kesha	Timber (feat. Ke$ha)	Mr.305/Polo Grounds Music/RCA Records	69	180	374	5274

Note: This table is an example of the daily Spotify charts, in this case of Austria's streaming charts on May 1, 2023, ranking tracks by popularity. It includes artist names, track titles, production credits, and performance metrics like peak rank, prior rank, duration on chart, and total streams, reflecting the dynamic listening preferences.

5 Empirical analysis

To detect if strategic voting takes place in the Eurovision Song Contest, we essentially estimate the following regression:

$$vote_{i,j,y} = \alpha + \beta\, distance_{i,j,y} + \gamma\, above_{i,j,y} + \delta\, distance_{i,j,y} \cdot above_{i,j,y} \tag{1}$$

where the dependent variable $vote_{i,j,y}$ is the *relative* number of points that (voters of) country i award to the song of country j in year y, defined as the difference between actual points and the average points awarded by other countries to the song of country j. To ensure that what it captures is not related to the *sign* of the difference between the points received by i and j, we also control for $above_{i,j,y}$, which takes value 1 if i received more points than j and 0 otherwise.

The variable $distance_{i,j,y}$ is our main regressor of interest and ideally captures the extent to which voters of country j perceive the song from country i as a close competitor in the ESC ranking. This is why voters should try to manipulate the elections and vote strategically: to change the ranking of the contest and favour their own country. For this variable, we adopt two different approaches.

- *Internal metrics* We estimate the competitiveness of songs within the ESC using internal metrics based on the actual standing of a song in either the semifinal or final.
- *External metrics* We consider external indicators of a song's chances of success, utilizing data from Spotify's charts.

Given the above observations, strategic voting in our setting is signalled by a positive sign for the coefficient β. As the relative positions of the national song and the song of another competing country get closer, voters have more substantial incentives to award the competing song fewer points to reduce the probability of the national song being overcome in the final ranking. A low distance thus should result in fewer points.

In most specifications, we further control for a variable $past_{i,j,y}$, representing the average of points assigned by country i to country j in the 3 years before year y. We consider biases and clusters in voting patterns at the ESC by considering behavior in past editions.[10]

5.1 Internal measures

As mentioned above, different approaches can be conceived to measure the distance between two songs. We start by considering two definitions of $distance_{i,j,y}$ based on Eurovision votes data. Specifically, we consider

[10]Since a consistent stream of literature, reviewed by Mantzaris et al. (2018), has identified systematic biases and clusters between countries we need to control for these factors.

the absolute value difference between the points received by the songs of the two countries (i) in the final rankings and (ii) in the semi-finals.

Option (i) has two disadvantages. The first disadvantage is that it relies on the assumption that voters can forecast such final rankings — akin to assuming that players in a complex simultaneous game will play a Nash equilibrium. A second disadvantage is that the dependent variable *vote* itself contributes to determining the rankings, so β can be affected by endogeneity issues.

Option (ii) has the disadvantage that it reduces the sample size (the estimation can only be based on votes between country pairs competing in the same semifinals and reaching the final), but it solves the endogeneity problem and is guaranteed to be salient to voters in the final.

We begin with Option (i). Column (1) in Table 8 shows the coefficients from estimates where the relative vote that voters of country i award to the song of country j in the ESC final in year y is regressed against the variable $distance_{i,j,y}$ defined as in definition (i). This relative vote is the (simple) mean between the points awarded by the jury and the points awarded by televoters; before 2016, we cannot split the scores between jury and televoting.

The coefficient β is positive and statistically significant. This reveals the presence of strategic voting because the points awarded by voters in country i to the song of country j get higher as total votes awarded in the final to country i and country j become more different. In other words, given a "domestic" song and a "foreign" song, if they are close to each other regarding the total number of points obtained in the final, domestic voters will penalize the foreign song because it is a strong rival of the domestic song. Domestic voters will assign more points to the foreign songs considered less of a rival.

Column (2) shows the estimate results where we add the control variable "above", which takes 1 if the song of country i ranks above the song of country j in the final, and 0 otherwise. The coefficient β remains strongly significant in this setting. The variable "above" is not significant as well as the interaction term "above · distance".

This interaction becomes significant once we control for past behaviour of voters. Column (3) of Table 5 reports the results for the specification where we add as a control variable, the mean of points attributed by country i to country j over the three previous Eurovision finals. This variable is meant to control for cross-vote patterns that persist over the years, which have been abundantly documented in the literature, and depend on cultural, political or simply geographical proximity and well-established voting blocs. [11]

In this framework, the coefficient associated with the variable *distance* remains significant and and only slightly decreases. This decrease suggests that the strategic component of votes is more typically *aligned* with cross-country patterns than not. The interaction term displays a statistically significant negative coefficient. This result is somehow expected as it shows that voters are more inclined to award high scores to foreign songs which are not close competitors of the domestic song, i.e. to songs which are distant from the domestic song in the ranking, as long as their position is below the position of the domestic song.

If this is not the case and instead the foreign song is above and distant in the ranking from the domestic song, then voters award it scores which are below the average of the scores awarded by voters of other nationality. The net effect of the variable "distance" for songs which are higher in the ranking is in fact negative. The negative coefficient of the interaction term in fact exceeds in absolute value the positive coefficient associated to "distance". Awarding lower scores to songs occupying higher positions in the ranking is a strategy to close the gap, with these strongest competitors. We call this effect the "catching-up effect"

The last three columns report the results for the model's specifications, where votes awarded by the jury and televoters can be split. Data availability limits this analysis to the years from 2016 on.

In particular, Column (4) reports the results for a specification of the model analogous to the specification reported in Column (3), the only difference being the time spell considered. These results are a useful benchmark to interpret the content in the following two columns, respectively Column (5) and Column (6), where we report the results obtained, making use alternatively either of the votes awarded in the ESC final by the jury or of the votes awarded by televoters.

The coefficient β in Column (4) remains statistically significant, preserves the positive sign and increases its magnitude. This provides further support to the hypothesis of strategic voting. The interaction term

[11] See Mantzaris et al. (2018) for a review of these issues.

Table 4: Eurovision final–based *distance*

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-0.028	-0.004	-0.360***	-0.443***	-0.381***	-0.505***
	(0.027)	(0.038)	(0.038)	(0.066)	(0.099)	(0.086)
above		-0.049	-0.052	-0.064	0.003	-0.132
		(0.054)	(0.051)	(0.087)	(0.132)	(0.114)
distance	0.446***	0.658***	0.359*	0.852***	0.994**	0.711*
	(0.160)	(0.225)	(0.215)	(0.287)	(0.435)	(0.374)
[!h] distance:above		-0.422	-0.900***	-0.760*	-1.031*	-0.490
		(0.319)	(0.305)	(0.407)	(0.617)	(0.531)
past			0.145***	0.117***	0.090***	0.143***
			(0.005)	(0.007)	(0.010)	(0.009)
voters	Mean	Mean	Mean	All	Jury	Telev.
years				$\geq$ 2016	$\geq$ 2016	$\geq$ 2016
Observations	9552	9552	9552	9000	4500	4500
R^2	0.001	0.002	0.090	0.036	0.020	0.060
Adjusted R^2	0.001	0.001	0.089	0.035	0.019	0.059

Note: Estimation of Equation (1) for different specifications of *vote*. For better readability, *distance* is expressed in thousands of points (while *vote* is expressed in points). Years 2008–2023 except 2020. *p<0.1; **p<0.05; ***p<0.01

is again statistically significant and associated with a negative coefficient whose magnitude decreases. This suggest that the catching-up effect is less significant.

If we consider separately the votes of televoting and the votes of the jury, the presence of strategic behaviour is specially evident, as expected, in the case of the jury, where coordination costs are lower and information collection easier. The coefficient associated to "distance", beyond being positive for both the jury and the televoting, is in fact bigger in the former case. Moreover the interaction term with the dummy "above" is only significant for the votes of the jury and has the usual negative sign that captures the catching-up effect.

Consider now the specification where the variable $distance_{i,j,y}$ is defined as in definition (ii). The results of the estimates are reported in Table 5, whose columns are symmetrical to the columns in Table 8.

In Column (1), the relative vote that voters of country i award to the song of country j in the ESC final in year y is regressed against the distance between the songs of country i and country j in terms of the total points obtained in the semifinal of the ESC. The coefficient β remains positive and statistically significant.

This result confirms the existence of strategic voting and highlights the fact that strategic behaviour is largely affected by the outcomes of the ESC semifinal. The magnitude of β is much larger than in previous estimates where the variable distance was based on the outcomes of the final and, importantly, increases from 0.446 to 2.595.

It is straightforward to interpret this result in light of the information revelation realized during the semifinals and crucial for shaping the strategy of voters. In the final, voters can rely on the information disclosed in the semifinals to elaborate a voting strategy. This information concerns, for instance, comments and news disclosed by media on the songs in the ESC. The outcomes of the semi-finals in fact are not made public. We can consider this stage of the ESC contest, which anticipates the final, as a mechanism that allows voters to coordinate their actions and direct their votes to weak competitors of the domestic song to enhance its chances of scaling up the ranking.

The effect of the outcomes of the semifinals is particularly significant and summarizes most of the strategic elements that characterize voter behaviour. As evident from the results reported in Columns (2) to (6), the coefficients of the variables "above" and of the interaction term with "distance" are never statistically significant, with the sole exception of the specification where the votes of televoting.

The information conveyed by voter past behaviour in the ESC is still relevant because the variable "past" always displays a positive and statistically significant coefficient. Nonetheless, once we control for issues like proximity and voting blocs, the strategic component captured by the coefficient β remains significant, and its magnitude is large.

Taking Column (3) results as a reference point, which concerns the estimate incorporating both control variables "above", the interaction term and "past" and are based on the longest available time series for ESC data, we observe a coefficient *beta* equal to 2.557. This outcome suggests that, on average, voters in country i assign an additional 2.5 points to the song of country j above the average score received by other countries for every 1,000 points of difference between the songs of country i and country j.

In terms of its impact on voting strategy, this implies that, for example, considering the figures from the ESC 2023 final (average distance between countries in ranking: 143.81 points, 25 countries competing in the final), 9.17 points out of the 58 allocated by each country to all songs except the domestic one in the contest are motivated by strategy. This amounts to 15.8% of the total, which is a non-negligible effect.

As in the previous table, the last three columns display the results obtained when model specification separately considers the votes of the jury and televoting. Column (4), which reports the outcome of the estimate where these votes are kept separate but analyzed together, shows evidence in line with the results presented above, which confirms the importance of the variable "distance" as opposed to the variables "above" and the interaction term in capturing the strategic behaviour of voters. The variable "distance" displays a positive statistically significant coefficient whose magnitude is lower than in previous estimates, which uses data from 2008 to 2023 instead of considering only the period 2016-2023. Lastly, past votes matter in this setting, and the variable *past* has a statistically significant coefficient.

Comparing Column (5) and Column (6) shows that, contrary to the case where the the variable "distance" is based on the results of the final, the jury behaves less strategically than voters of televoting. In Column (5), which reports the results of the estimate concerning the jury votes, the coefficient *beta* remains positive but is not statistically significant, just as the coefficients of the variable "above" and of the interaction term. These parameters instead are significant in the case of televoting with the exception of the coefficient of the dummy "above", confirming previously observed characteristics of the strategic behaviour in the ESC.

A possible explanation for these results which are at odd with the theory, concerns the nature of the information which is revealed after the semifinal. This information in fact, is the only indirectly made available to televoters through the media. Jury members instead, are more likely to have access to superior information due to their role as insiders of the music market. As a consequence, while the strategic behaviour of televoters is largely driven by the performances of the national artist in the semifinals, the behaviour of jury members possibly responds more to different kind of information.

5.2 External measures

The results above show that voters in the ESC engage in strategic voting, and shape their strategy on the information revealed during the contest, namely in the final or the semifinal. However, the results of the different stages of the ESC are not the only sources of information available to voters to coordinate their actions to improve the performance of the domestic song in the competition.

In this context, the most popular and possibly reliable source of information is the national charts of Spotify. The ranking in this chart reveals the preferences for the competing songs of voters in a specific country and, thus, the extent to which they consider this song a fierce competitor of the domestic song in the ESC.

We exploit Spotify data to answer different questions.

A first question is whether the information coming from Spotify is relevant in affecting the strategic behaviour of voters. In particular we can identify two situations where this could be the case.

Table 5: Main results — *distance* based on Eurovision semifinal

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.238***	0.239***	-0.344***	-0.332**	0.031	-0.695***
	(0.061)	(0.085)	(0.083)	(0.143)	(0.219)	(0.182)
above		-0.002	0.043	-0.082	-0.380	0.216
		(0.121)	(0.112)	(0.190)	(0.291)	(0.242)
distance	2.595***	2.519**	2.557**	3.254**	2.496	4.013**
	(0.819)	(1.155)	(1.065)	(1.465)	(2.248)	(1.868)
distance:above		0.152	-1.873	-0.953	2.485	-4.390*
		(1.639)	(1.515)	(2.078)	(3.189)	(2.650)
past			0.216***	0.194***	0.167***	0.221***
			(0.010)	(0.014)	(0.022)	(0.018)
voters	Mean	Mean	Mean	All	Jury	Telev.
years				$\geq$ 2016	$\geq$ 2016	$\geq$ 2016
Observations	2700	2700	2700	2520	1260	1260
R^2	0.004	0.004	0.153	0.072	0.051	0.109
Adjusted R^2	0.003	0.003	0.152	0.071	0.048	0.106

Note: Equivalent of Table 8, except that *distance* is computed on the Eurovision semi-final final rather than on the final. Years 2008–2023 except 2020. *p<0.1; **p<0.05; ***p<0.01

One situation includes the two semifinals. At this stage of the competition in fact, no information has been revealed within the ESC yet, and the only available information shall come from outside the contest. As a consequence, it is reasonable to expect that voters develop their strategies based on Spotify charts, which are easily available for all countries and cover a large subset of the songs in the ESC.

A second situation when Spotify based information could be used is when voters must award a score to the songs of the so-called Big-Five (France, Germany, Italy, Spain and the UK), i.e. the countries which have direct access to the final of the ESC and do not participate in the semifinal stage. Also in this case in fact, the only available information about voter preferences must come from outside the contest.

To answer this question, we need to measure the distance between songs in Spotify and to characterize a specific regressor "distance" to use in Equation (1).

This regressor originates from the daily Spotify charts of the most listened songs. We aggregate the position of each song on each national ranking into a single measure by assigning to each song several points equal to the number of songs *below* it in the national chart. We then add these points across countries. $distance_{i,j,y}$ is then defined as the difference, in points, between the points of song i and the points of song j.

For this measure of the distance between different songs, data are available only from 2018 on. As a consequence, the number of observations significantly decreases.

The results of the estimates where these measures are used to capture the effects of external information on the strategic behaviour of voters in the ESC final and semifinal are reported in Table 6. In this setting, we don't include any measure of distance based on the competition within the ESC to focus on external measures.

The evidence which emerges from this analysis is easily interpreted. External information is not relevant to the strategic behaviour of voters, no matter if we consider voting behaviours in the semifinal (Columns (1) to (3)) or in the final (Column (4)). In this context, the only variable displaying a statistically significant

coefficient is the variable "past" and shows that, in accordance with the results of other studies on voter behaviour in the ESC, if strategic voting is not explicitly considered, only past patterns matter.

These findings strengthen the hypothesis that internal information mostly shapes voter strategies. The purpose of strategic voting is to improve the performance of the domestic song in the ESC, implying that the only salient information is the information generated by the specific dynamics observed in the contest, including those deriving from voting blocs or the structure of the contest, as, countries distributions in the semifinals, or the ordering of the exhibitions in the final. All these issues are not captured by external information, which thus is less suit than internal information to shape voter strategies. It is worth noting that no differences emerge in this field between jury and televoting.

This irrelevance result may be unexpected even when the semifinal results are considered, i.e., when no internal information has been generated yet. However, a possible explanation in this case is that the incentive to act strategically at this stage of the game is limited, given that the ranking of the semifinal can undergo substantial changes in the final. The only concern in this context, is to allow the domestic song to qualify for the final. This result is easily obtained for most countries, implying that the coordination effort required to vote strategically prevails over the expected benefits.

Interestingly enough, the only situation when external information matters is when we analyze the scores awarded to the Big Five. In this case the coefficient of "distance" is statistically significant and has the usual positive coefficient; analogously the interaction term displays a significant and negative coefficient which captures the catching-up effect. Lastly, the dummy "above" is also significant and with a positive sign, which shows that, on average, voters tend to penalize more foreign songs which are in a better position compared to the domestic song.

A second question concerning external information which is worth addressing is if the information coming from Spotify, i.e. information coming from a source which is external with respect to the ESC, is complementary to that that originated within the ESC, and somehow affects the strategic behaviour of voters.

We test this hypothesis by means of a set of estimates where internal and external measures of distance are jointly used as regressors. The results of these estimates are reported in Table 6.

Table 7 shows the estimation results employing these externally defined measures.

We find that both internal and external distances are irrelevant when the outcomes of the semifinals are considered. This suggests that, as previously noted, that the strategic component in voter behaviour is quite limited during these stages of the contest. What matters in fact, is not the ranking of the semifinal itself, but the fact that the domestic song qualifies for the final.

When instead, the outcomes of the final are at a stake, we observe that internal distance remains significant and has the usual positive sign, when distance is measured based on the ranking of the final.

The internal distance based on semifinal outcome instead is significant when televoting is considered. In this context, i.e. when the variable distance is based on the semifinals, some complementarity between external and internal measures emerges as the interaction term between the dummy "above" (measured as ....) and external distance is considered. The associated coefficient is in fact, significant and negative and signals, as usual, the catching-up effect.

It is worth noting that the outcomes of televoting show the biggest evidence of strategic behaviour, since, as it emerges from the results in Column (5), all the variables that captures strategic elements have statistically significant coefficients except the external distance. This seems to suggest that televoters are more prone to strategic voting than jurors which contradicts the standard prediction.

distance has a mostly positive sign but is not statistically significant. This is interesting because it implies that the strategic voting component is emerging from the salience of competition and relative results inside Eurovision. It does not appear from other proxies of a song's likelihood of winning or obtaining a suitable placement.

In particular, this allows us to exclude the effect observed in Table5 result from a spurious correlation between the tendency of different countries to candidate successful/unsuccessful songs to Eurovision and of voting for each other.

Table 6: Spotify–based *distance*s

	(1)	(2)	(3)	(4)	(5)
Intercept	-0.458***	-0.237**	-0.235***	-0.236***	-0.256***
	(0.111)	(0.108)	(0.075)	(0.038)	(0.089)
above	0.138	0.083	0.054	0.058	0.283**
	(0.139)	(0.140)	(0.093)	(0.049)	(0.124)
distance	-0.017	-0.068	-0.012	0.001	0.111**
	(0.055)	(0.091)	(0.037)	(0.018)	(0.049)
distance:above	-0.084	-0.004	-0.055	-0.042*	-0.193**
	(0.077)	(0.128)	(0.052)	(0.025)	(0.081)
past	0.156***	0.068***	0.098***	0.061***	0.027**
	(0.012)	(0.010)	(0.008)	(0.004)	(0.012)
years	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018
distance	Charts	Charts	Charts	Charts	Charts
delta	Semif.	Semif.	Semif.	Final	Final
voters	Mean	Jury	Telev.	Mean	Mean
Observations	1592	1268	1578	5540	832
R^2	0.099	0.038	0.089	0.037	0.015
Adjusted R^2	0.097	0.035	0.087	0.037	0.010

Note: Main results, with "distance" based on external measures: rankings in national Spotify charts for columns 1-3, prediction of success (points obtained in Eurovision) based on song features in columns 4-6. Years 2018-2023, except 2021. *p<0.1; **p<0.05; ***p<0.01

Table 7: Combination of internal and external distances

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Intercept	-0.399***	-0.313***	-0.159	-0.467***	-0.291***	-0.209***	-0.372***	-0.263**	-0.273**	-0.253***
	(0.142)	(0.100)	(0.107)	(0.092)	(0.045)	(0.048)	(0.042)	(0.105)	(0.116)	(0.091)
Above	0.176	0.273**	0.085	0.461***	0.063	0.015	0.111**	0.140	0.226	0.054
	(0.187)	(0.132)	(0.141)	(0.121)	(0.059)	(0.063)	(0.055)	(0.149)	(0.164)	(0.129)
External dist	-0.014	0.054	0.072*	0.036	-0.020	-0.029	-0.011	0.112**	0.189***	0.035
	(0.055)	(0.039)	(0.041)	(0.035)	(0.020)	(0.021)	(0.018)	(0.057)	(0.063)	(0.049)
External dist:Above	-0.082	-0.144***	-0.117**	-0.172***	-0.039	-0.017	-0.062**	-0.282***	-0.291***	-0.273***
	(0.078)	(0.055)	(0.059)	(0.050)	(0.028)	(0.030)	(0.026)	(0.094)	(0.103)	(0.081)
Past	0.157***	0.093***	0.086***	0.101***	0.060***	0.045***	0.075***	0.030**	-0.008	0.069***
	(0.012)	(0.008)	(0.009)	(0.008)	(0.004)	(0.004)	(0.004)	(0.012)	(0.013)	(0.010)
Internal distance	-1.047	1.155	0.195	2.115**	0.519**	0.467**	0.570***	-0.033	0.208	-0.274
	(1.478)	(1.041)	(1.116)	(0.955)	(0.215)	(0.228)	(0.200)	(0.466)	(0.514)	(0.404)
Internal dist:Above	-0.622	-1.028	0.782	-2.839**	-0.047	0.075	-0.168	1.169*	1.153	1.185**
	(2.091)	(1.473)	(1.579)	(1.352)	(0.303)	(0.322)	(0.283)	(0.673)	(0.741)	(0.583)
years	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018	$\geq$ 2018
internal d.	Semif.	Semif.	Semif.	Semif.	Final	Final	Final	Final	Final	Final
external d.	Charts	Charts	Charts	Charts	Charts	Charts	Charts	Charts	Charts	Charts
dependent	Semif.	Final	Final	Final	Final	Final	Final	Final	Final	Final
voters	Mean	Mean	Jury	Telev.	Mean	Jury	Telev.	Mean	Jury	Telev.
subset								Big 5	Big 5	Big 5
Observations	1592	1592	1592	1592	5540	5540	5540	832	832	832
R^2	0.100	0.076	0.057	0.107	0.039	0.021	0.067	0.021	0.027	0.055
Adjusted R^2	0.097	0.073	0.053	0.103	0.038	0.020	0.066	0.014	0.020	0.048

6 Conclusions

This work contributes to understanding strategic behaviour in positional voting, particularly within the context of significant elections. It evaluates the benefits of positional voting, emphasizing its potential to capture diverse voter preferences and mitigate extreme outcomes.

The Eurovision Song Contest (ESC) serves as a unique case study, enabling the examination of the prevalence of strategic voting in different stages of the competition.

The paper sheds light on the dynamics of strategic manipulation. The findings indicate that strategic behaviour is more pronounced among industry experts than the popular jury, highlighting the impact of information availability and coordination costs on voting patterns. This underscores the feasibility of positional voting in effectively aggregating preferences in large-scale elections, with the complexity and effort associated with strategic voting acting as a deterrent for the popular jury.

7 Appendix 1: Alternative specifications

7.1 Lagged distance

In order to avoid endogeneity problems, in this specification we introduce the variable "distance" lagged one period. The implicit assumption in using this variable as our main regressor is that the only information available to voters to elaborate their strategy is the information coming from the previous edition of the contest. For instance, if in the previous year the song of country i was perceived as a strong competitor of the domestic song, voters will penalize it also in the current edition. This is what actually emerges from Table **??** where the only variable displaying a significant coefficient is the interaction term. The sign of the coefficient is, as usual, negative and captures the catching-up effect.

Table 8: Eurovision final–based *distance_past*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	0.045	0.081*	0.037	-0.382***	-0.340***	-0.186	-0.494***
	(0.034)	(0.047)	(0.054)	(0.054)	(0.091)	(0.140)	(0.117)
above_past		-0.059	0.030	0.076	0.038	0.121	-0.045
		(0.054)	(0.077)	(0.073)	(0.122)	(0.187)	(0.156)
distance_past	-0.214	-0.238	0.109	-0.245	-0.137	-0.100	-0.173
	(0.201)	(0.216)	(0.305)	(0.288)	(0.378)	(0.578)	(0.485)
distance_past:above_past			-0.696	-3.482***	-2.854***	-2.571***	-3.138***
			(0.433)	(0.422)	(0.559)	(0.854)	(0.717)
past				0.181***	0.145***	0.095***	0.196***
				(0.007)	(0.010)	(0.015)	(0.013)
voters	Mean	Mean	Mean	Mean	All	Jury	Telev.
years					$\geq$ 2016	$\geq$ 2016	$\geq$ 2016
Observations	5378	4778	4778	4778	4728	2364	2364
R^2	0.000	0.001	0.001	0.115	0.043	0.018	0.089
Adjusted R^2	0.000	0.000	0.000	0.114	0.042	0.016	0.088

Note: Estimation of Equation (1) for different specifications of *vote*. For better readability, *distance* is expressed in thousands of points (while *vote* is expressed in points). Years 2008–2023 except 2020. *p<0.1; **p<0.05; ***p<0.01

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8 Appendix

Table 9: Effect of position within Eurovision ranking

	semi	jsemi	tsemi	final	fin_post	jfinal	tfinal
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	-0.264**	-0.481	-0.387	-0.478***	-0.622***	-0.667***	-0.577***
	(0.112)	(0.398)	(0.335)	(0.058)	(0.131)	(0.182)	(0.156)
distance	2.471*	6.885**	-1.962	-0.047	0.637	0.976	0.299
	(1.302)	(3.207)	(2.699)	(0.272)	(0.454)	(0.633)	(0.542)
distance:position	-0.028	-0.668	0.682	0.040**	0.013	-0.003	0.029
	(0.174)	(0.524)	(0.441)	(0.019)	(0.029)	(0.041)	(0.035)
past	0.467***	0.514***	0.650***	0.335***	0.317***	0.249***	0.385***
	(0.021)	(0.066)	(0.055)	(0.010)	(0.022)	(0.030)	(0.026)
position	-0.014	0.055	-0.039	0.000	0.009	0.017	0.001
	(0.012)	(0.061)	(0.052)	(0.004)	(0.008)	(0.011)	(0.009)
distance	Semif.	Semif.	Semif.	Final	Final	Final	Final
voters	Mean	Jury	Telev.	Mean	Mean	Jury	Telev.
years		$\geq$ 2016	$\geq$ 2016		$\geq$ 2016	$\geq$ 2016	$\geq$ 2016
Observations	2520	1080	1080	8902	3850	3850	3850
R^2	0.163	0.061	0.117	0.104	0.056	0.020	0.056
Adjusted R^2	0.162	0.058	0.114	0.104	0.055	0.019	0.055

Note: Estimation of Equation (1) interacting *distance* with the position in the rankings of the song that receives the vote. For better readability, *distance* is expressed in thousands of points (while *vote* is expressed in points). Years 2008–2023 except 2020.

Table 10: Summary Statistics - Votes in the ESC Final from 2008 to 2023

Country	Times voted	Times non-zero voted	Points Received	Mean Points Received	Non Zero Mean Points Received	# in the Final
Albania	870	181	545	1.50	4.70	9
Armenia	754	151	932	2.40	4.80	10
Australia	464	110	867	3.10	4.20	7
Austria	696	154	707	2.60	4.60	7
Azerbaijan	870	179	1526	3.00	5.50	13
Belarus	696	140	166	0.90	3.80	5
Belgium	870	177	863	2.80	4.50	8
Bulgaria	638	141	629	3.90	4.80	4
Croatia	754	162	249	1.20	3.10	5
Cyprus	812	170	567	1.60	4.20	9
Czech Republic	580	139	258	1.60	3.00	4
Denmark	870	177	1004	2.50	5.00	10
Estonia	870	179	733	2.00	4.30	9
Finland	870	184	649	1.80	4.80	9
France	870	185	1003	1.70	3.80	15
Georgia	812	175	482	2.00	5.40	6
Germany	870	182	773	1.30	4.90	15
Greece	870	181	1140	2.40	5.40	12
Hungary	638	135	518	1.60	3.80	8
Iceland	870	174	850	2.20	5.10	10
Ireland	870	185	263	1.30	4.20	5
Israel	870	178	935	2.40	4.40	10
Italy	696	157	1931	4.10	5.60	12
Latvia	870	182	335	2.70	4.80	3
Lithuania	870	176	631	1.60	3.90	10
Malta	870	181	481	1.80	3.80	7
Moldova	870	181	868	2.20	4.40	10
Montenegro	638	135	81	1.10	7.40	2
Netherlands	870	181	904	2.90	4.70	8
North Macedonia	812	167	223	2.80	4.90	2
Norway	870	177	1569	3.10	4.70	13
Poland	754	170	354	1.30	3.00	7
Portugal	754	161	777	2.50	5.40	8
Romania	812	170	740	1.90	4.60	10
Russia	696	140	1887	4.30	6.20	11
San Marino	754	161	77	0.70	2.70	3
Serbia	812	173	964	2.20	5.20	11
Slovenia	870	185	267	1.10	3.20	6
Spain	870	173	770	1.30	4.00	15
Sweden	870	179	2450	4.40	5.90	14
Switzerland	870	182	566	2.50	4.20	6
Ukraine	754	158	1931	3.80	5.90	13
United Kingdom	870	186	738	1.20	4.10	15

Note: This table summarizes voting patterns for the ESC finals from 2008 to 2023. It details each country's total and non-zero vote counts, points received, mean and non- zero mean points. The data provides insights into the trends and performances of participating countries. The statistics cover the number of times each country participated in the final and reflect total, average, and non-zero average scores. Source: Flecht (2024)

Table 11: Voting Matrix for the 2008 Final

rcv_cty vtn_cty	Albania	Armenia	Azerbaijan	...	...	...	France	United Kingdom	Georgia
Andorra	0.0	0.0	7.0	...	...	...	3.0	0.0	0.0
Albania	NaN	2.0	0.0	...	...	...	0.0	0.0	0.0
Armenia	0.0	NaN	0.0	...	...	...	4.0	0.0	10.0
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
San Marino	3.0	8.0	0.0	...	...	...	0.0	6.0	0.0
Turkey	1.0	10.0	12.0	...	...	...	0.0	0.0	4.0
Ukraine	0.0	7.0	10.0	...	...	...	0.0	0.0	8.0

Note: This matrix represents the voting patterns during the 2008 Eurovision Song Contest final. Each cell shows the number of points awarded by the voting country (row) to the receiving country (column). "NaN" indicates instances where a country could not vote for itself.

Table 12: Number of Observation of the Spotify Charts at country level

Country	Days available	First Day Observed	Last Day Observed
Sweden	2342	2017-01-01	2023-05-31
Poland	2342	2017-01-01	2023-05-31
Ukraine	1051	2020-07-15	2023-05-31
Belgium	2342	2017-01-01	2023-05-31
Norway	2342	2017-01-01	2023-05-31
Greece	2342	2017-01-01	2023-05-31
Estonia	2342	2017-01-01	2023-05-31
Latvia	2342	2017-01-01	2023-05-31
Switzerland	2342	2017-01-01	2023-05-31
Italy	2342	2017-01-01	2023-05-31
Iceland	2342	2017-01-01	2023-05-31
Czechia	2342	2017-01-01	2023-05-31
Romania	1905	2018-03-14	2023-05-31
Portugal	2342	2017-01-01	2023-05-31
United Kingdom	2342	2017-01-01	2023-05-31
Australia	2342	2017-01-01	2023-05-31
Hungary	2342	2017-01-01	2023-05-31
The Netherlands	2342	2017-01-01	2023-05-31
Bulgaria	2342	2017-01-01	2023-05-31
Austria	2342	2017-01-01	2023-05-31
Germany	2342	2017-01-01	2023-05-31
Denmark	2342	2017-01-01	2023-05-31
Finland	2342	2017-01-01	2023-05-31
France	2342	2017-01-01	2023-05-31
Spain	2342	2017-01-01	2023-05-31
Ireland	2342	2017-01-01	2023-05-31
Lithuania	2342	2017-01-01	2023-05-31
Israel	1905	2018-03-14	2023-05-31

Note: This table outlines the number of observations from the Spotify Charts at a country level. It lists each country with the count of data files available, the first and the last day of the data collection period.

Table 13: Song popularity in other countries (how many countries have Country song in their chart)

Country	Min	Max	Average	Country	Min	Max	Average
Albania	0.00	3.00	1.00	Italy	1.00	22.00	11.00
Armenia	0.00	7.00	2.00	Lithuania	0.00	9.00	5.00
Austria	0.00	13.00	6.00	Latvia	0.00	4.00	2.00
Australia	2.00	7.00	4.00	Moldova	0.00	9.00	4.00
Azerbaijan	0.00	10.00	4.00	Montenegro	0.00	1.00	0.00
Bosnia	0.00	0.00	0.00	North Macedonia	0.00	5.00	1.00
Belgium	2.00	14.00	7.00	Malta	0.00	10.00	4.00
Bulgaria	0.00	11.00	4.00	Netherlands	3.00	17.00	7.00
Belarus	0.00	2.00	0.00	Norway	0.00	25.00	11.00
Switzerland	0.00	12.00	6.00	Poland	1.00	11.00	4.00
Cyprus	2.00	19.00	8.00	Portugal	0.00	10.00	5.00
Czech Republic	0.00	15.00	7.00	Romania	0.00	8.00	2.00
Germany	0.00	8.00	4.00	Serbia	0.00	7.00	2.00
Denmark	2.00	5.00	3.00	Russia	0.00	10.00	2.00
Estonia	2.00	6.00	3.00	Sweden	9.00	28.00	13.00
Spain	2.00	11.00	4.00	Slovenia	1.00	8.00	3.00
Finland	0.00	25.00	9.00	San Marino	0.00	7.00	2.00
France	2.00	11.00	7.00	Turkey	0.00	0.00	0.00
United Kingdom	1.00	10.00	5.00	Ukraine	0.00	20.00	8.00
Georgia	0.00	6.00	2.00				
Greece	2.00	9.00	4.00				
Croatia	0.00	9.00	4.00				
Hungary	0.00	6.00	2.00				
Ireland	0.00	4.00	2.00				
Israel	2.00	17.00	8.00				
Iceland	1.00	12.00	4.00				

Note: This table presents the popularity of songs from various countries in international markets, as reflected in Spotify Charts. It shows the minimum (Min), maximum (Max), and average (Average) number of countries where songs from each listed country have appeared in the charts.

Table 14: Popularity of Eurovision in Country: Number of Eurovision songs that Country have in its charts

Country	Min	Max	Average
Austria	1.00	6.00	3.17
Australia	1.00	1.00	1.00
Belgium	2.00	16.00	8.67
Bulgaria	1.00	3.00	1.40
Switzerland	1.00	5.00	2.80
Czech Republic	1.00	4.00	2.40
Germany	2.00	4.00	2.67
Denmark	1.00	8.00	3.67
Estonia	4.00	23.00	14.17
Spain	1.00	8.00	4.50
Finland	2.00	37.00	17.50
France	1.00	2.00	1.40
United Kingdom	1.00	6.00	3.50
Greece	3.00	12.00	7.17
Hungary	2.00	10.00	5.50
Ireland	2.00	5.00	3.00
Israel	3.00	13.00	7.25
Iceland	24.00	40.00	33.83
Italy	1.00	3.00	1.67
Lithuania	8.00	37.00	23.67
Latvia	1.00	16.00	8.60
Netherlands	3.00	23.00	9.17
Norway	5.00	24.00	14.50
Poland	1.00	10.00	4.60
Portugal	1.00	4.00	2.40
Romania	1.00	3.00	2.20
Sweden	11.00	24.00	17.17
Ukraine	3.00	6.00	4.33

Note: This table presents the popularity of songs from various countries in international markets, as reflected in Spotify Charts. It shows the minimum (Min), maximum (Max), and average (Average) number of countries where songs from each listed country have appeared in the charts.

Table 15: Voting Systems adopted in the Eurovision

Year	Points Awarded	Voting Method
1956	(10–1) × 2	Two jurors per country rated each song on a scale of 1 to 10 points.
1957–1961	10–1	Ten-member juries distributed 10 points among their favourite songs.
1962	3-1	Ten-member juries awarded points to their three favourite songs.
1963	5-1	1962: Twenty-member juries awarded points to their five favourite songs.
1964–1966	5, 3, 1 / 6, 3 / 9	Ten-member juries distributed 9 points in three possible ways.
1967–1970	10–1	Ten-member juries distributed 10 points among their favourite songs.
1971–1973	10–2	Two-member juries (one aged over 25 and the other under 25, with at least 10 years between their ages) rated songs between 1 and 5 points.
1974	10–1	Ten-member juries distributed 10 points among their favourite songs.
1975–1996	12, 10, 8–1	All countries had at least eleven jury members that would award points to their top ten songs.
1997		Twenty countries had jury members and five countries used televote to decide which songs would get points.
1998–2000		Televoting used in all countries.
2001–2002		Choice between full televoting and mixed system.
2003		Telephone/SMS voting in all countries.
2004–2008; 2009 (semi-finals)		Televoting and/or SMS-voting used.
2009 (final); 2010–2012		All countries use televoting and/or SMS-voting (50%) and five-member juries (50%).
2013–2015		The jurors and televoting each rank all the competing entries.
2016–2017	(12, 10, 8–1) × 2	The jury and the televote each award an independent set of points. First the jury points are announced and then the televoting points are calculated together before being added to the jury points, effectively doubling the points which can be awarded in total.
2018–2022		The same as in 2016–17, but the points from a country's jury are now calculated using an exponential weight model.
2023	12, 10, 8–1 (semi-finals) (12, 10, 8–1) × 2 (final)	Semi-finals: only televote. Final: independent jury and televote points.

Note: This table provides an historical overview of the Eurovision Song Contest's voting system from 1956 to 2023. It details the points awarded each year and the methods used for voting, illustrating the evolution of the process. The table encompasses various voting methods, including jury-based, televoting, and mixed systems, reflecting changes in technology and participation over the decades.