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# **The impact of the duration of poll embargoes on parliamentary elections**

Bachelor thesis

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## **Abstract**

Public opinion polls contribute to understanding and possibly predicting voter behaviour, but may also affect voting behaviour. Due to concerns about such possible effects of polling, some governments ban the publication of opinion polls within a certain time frame before election day by enforcing a poll embargo. This study is an empirical investigation of possible influences of poll embargoes on voter's preferences and party composition in parliament. A comparative analysis among 31 countries was conducted to examine the relation between the duration of poll embargoes and respectively the effective number of parties in parliament and embargoes' ability to accurately predict election results. The results indicate no statistically significant relation in both models. Therefore, no valid conclusions could be drawn. Suggestions for future research are provided to improve this study's operationalisation and increase our understanding of the impact of poll embargoes.

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## **Introduction**

Casting votes lies at the heart of representative democracy. It allows the population to choose those who may represent their interests and exert influence on public policy. Nowadays, voting behaviour is less predictable in many countries. Voters tend to make their choice later in the campaign, e.g. in the last couple of days before election day (Irwin and Van Holsteyn, 2008). The percentage of these ‘floating voters’, who have not made a final decision on their vote during the campaign (Van der Kolk, 2000), is increasing (Hague et al., 2016). Also, electoral volatility levels have been on the rise in consolidated democracies since the 1970s (Gallagher et al., 2011).

Public opinion polls could contribute to understanding and possibly predicting voter behaviour. Such polls generally comprise of a list of standardized questions posed to a representative sample of the electorate, with the goal to measure public opinion (Hague et al., 2016). The results of the polls, and how they are being published and interpreted, might not only measure, but also impact the electorate’s voter behaviour. Polls could, among others, alter existing expectations and attitudes, such as one’s belief who will win the election (Morwitz and Pluzinski, 1996). Since people have a tendency to conform to majority opinion, polls can become self-fulfilling prophecies or produce an opinion cascade (Rothschild and Malhotra, 2014). Furthermore, polls might influence party composition (Lago et al., 2015). I will elaborate on these and other theories on how polls can affect voting behaviour in the Theoretical Framework.

Due to concerns about possible effects of polling, some governments ban the publication of opinion polls within a certain time frame before election day by enforcing a poll embargo or blackout period (Donsbach and Hartung, 2008, cited in Aalberg and Van Elst, 2014; Donovan and Bowler, 2016). According to a definition by Orr and Levy (2016: p.319), a poll embargo prohibits “the reporting, if not conduct, of electoral opinion polls during an election campaign”. There are different forms of restrictions (Chung, 2012):

- the polls may not be conducted at all;
- polls may only be conducted inside and/or outside near the polling station;
- some exit polls may be conducted;
- some subjects may not be questioned.

Such restrictions are mostly being enforced by government agencies or election administration offices, independent agencies, and broadcast/press regulatory agencies (Chung, 2012). Figure 1 shows which countries have such poll embargoes.

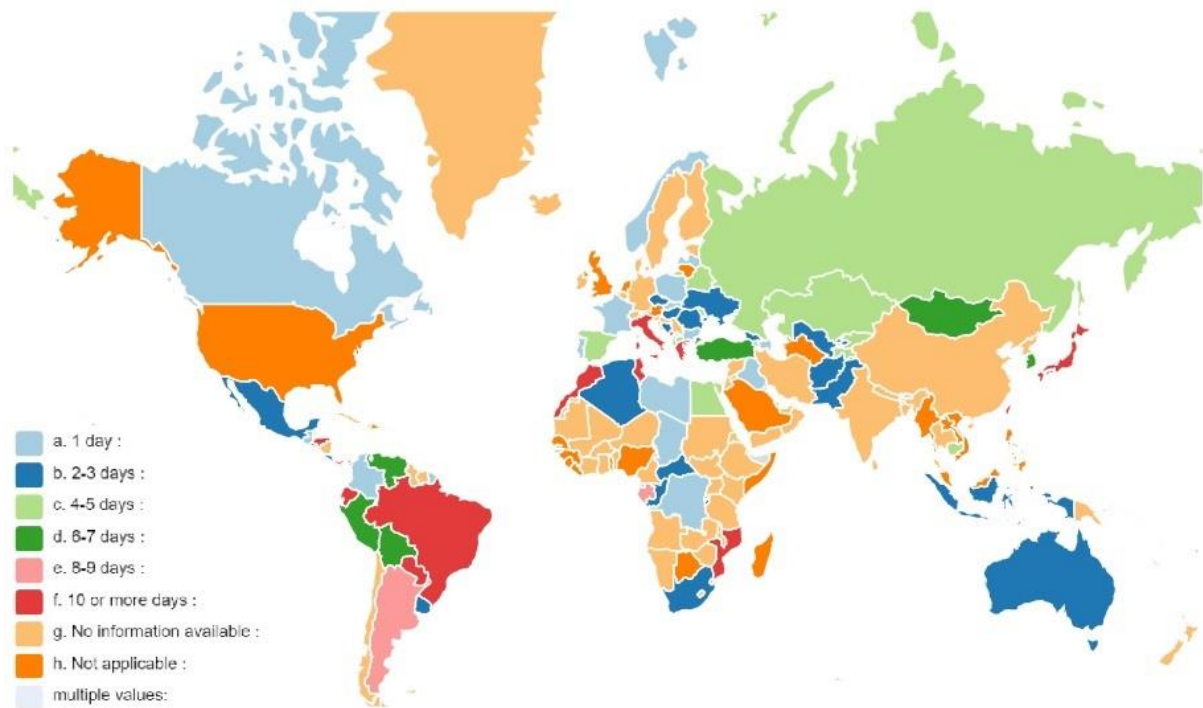


Figure 1. Blackout periods for release of opinion poll results per country (Electoral Knowledge Network, 2016).

As can be seen, the duration of the blackout periods greatly differs per country. Some do not have a poll embargo at all, such as the Netherlands, others impose a short blackout period of 24 to 48 hours, like Uruguay (48 hours) and again others ban the publication of polls for a period of more than 10 days, such as Italy (15 days).

In the light of the possible effects of the publication of public opinion polls, the question rises whether poll embargoes may have impact too. The aim of this paper is to investigate possible influences of poll embargoes on voter's behaviour and on the party composition represented in parliament. Several studies have investigated this issue, but our understanding of poll embargoes' influences is still poor. Some studies did not look at the direct impact of embargoes on voter behaviour. Orr and Levy (2016), for instance, discussed opinion polling regulations in various countries and how such rules would fit into deliberative democracy. Others did not conduct a comparative study. Sulek (2008) focussed on the case of Poland, that prohibited the publication of pre-election poll results in the 1990s. Donovan and Bowler (2016)

conducted an experimental study in the United States on how voters respond to poll results and what this might imply for legal bans on the publication of polls. Furthermore, others compared different countries, but they did not focus on the duration of poll embargoes. Lago et al. (2015) investigated the political after-effects of blackout periods and concluded that restricting laws impede voters' electoral coordination due to information failure, especially when the political environment is complex. However, they did not consider the possible influence of the poll embargoes' varying durations. Jennings and Wlezien (2015) did a comparative study on how voters' preferences change over time in election cycles in various countries, including ones with publication restrictions. However, in these states, they used the final poll results until the end of the cycle and did not look into the effect of lacking, more recent poll results. The purpose of this paper is to fill these gaps in scientific literature. Therefore, the research question is the following: how does the duration of poll embargoes impact voting preferences and party representation in parliament?

This study may be useful for voters and policy makers in countries that have installed poll embargoes as well as those who are planning to do so. If poll embargoes appear to influence voter preferences, they can indirectly affect election results. Awareness about these effects can be both useful and desirable.



## **Theoretical framework**

Much research has been conducted on what voters base their choice on. Factors can be psychological or sociological (Hague et al., 2016); long-term, such as party identification and social position, as well as short term, in the case of issue-voting (Hague et al., 2016); reactive or more ‘pushing’, when they relate to social or religious background (Lodge et al., 1995); and/or institutional (Anderson, 2007). Last but not least, polls can also influence voter choice. Their possible impact will be the focus of this study.

In these polls, voters can be asked, among others, how they evaluate the functioning of the current government, which political leaders they trust most, or which party they would vote for in the next elections. In the latter case, polls aim to predict each party’s share of votes (Moon, 1999). When conducted several times, they can record developments in voting behaviour between elections: are voters likely to support the same party they have voted for during the last elections, or do they consider making a different choice if elections were held at the moment of polling? Are they likely to engage in strategic or tactical voting, e.g. by supporting a party that is doing well in the polls? This is not only interesting for politicians and/or political parties (Irwin and Van Holsteyn, 2008), who could use the results to adapt their strategy, but also for media (Wichmann and Brettschneider, 2009), who try to predict election results before all votes are in. This could be months before election day, but also on the day itself. Thus, the moment of publication of the opinion polls is important. Exit polls seem to impact voters’ behaviour especially when voters feel the closeness of the race (Sudman, 1986).

Opinion polls have been extensively researched, yet their effects are sometimes ambiguous. Since people have a tendency to conform to majority opinion, polls can become self-fulfilling prophecies or produce an opinion cascade (Rothschild and Malhotra, 2014). This effect, often being referred to as the ‘bandwagon effect’, appears to be particularly the case when people have ‘weaker’ attitudes towards political issues or parties, i.e. they are less informed about the issue or when their attitudes were not strengthened by partisan predispositions. Van der Meer et al. (2016)

confirm the bandwagon effect, but agree with Rothschild and Malhotra (2014) that support for this effect is not overwhelming.

Morwitz and Pluzinski (1996) found three possible effects of opinion polls <sup>1</sup>:

- Reinforce existing expectations and attitudes;
- Alteration of voters' expectations about who will win the election;
- Cause of changes in attitudes toward the candidates in a manner that favours the leading candidate.

The strength of these effects depends on the extent to which people have different preferences and expectations. Morwitz and Pluzinski (1996) explain that when the results of elections are predicted to be close and a considerable part of voters with the intention to vote for the trailing candidate expect the leading candidate to win, poll exposure is more likely to influence them. Chances of a bandwagon effect are in this case higher.

Polls may also impact voters' turnout decisions, because they inform people about predicted levels of support for certain parties and/or candidates. If the polls predict that the elections will be a close call, voters are more likely to assume that their vote will be pivotal when they support the party that has a small majority (Klor and Winter, 2006).

Taking these effects into consideration, what could happen if poll embargoes were imposed? Lago et al. (2015) found that purposely restricting publication of pre-election polls leads to an information failure. Such failure entails, for example, votes being less concentrated on leading parties or candidates and being more spread across parties. In other words, there is a coordination failure in multiparty elections. In some countries the number of parties is higher, which increases the information demand of voters. When the latter occurs, poll embargoes deteriorate the precision of voters' electoral expectations. As a consequence, the amount of wasted votes increases. Wasted votes are votes not for an elected candidate, or, as defined by Lago et al. (2015, p. 2) "those votes for hopeless candidates or parties". They thus higher the

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<sup>1</sup> Note that Morwitz and Pluzinski (1996) mention voters, but do not explicitly refer to non-voters. The latter group might be affected differently.

chances for non-leading parties to gain a seat in parliament, as less people are prone to vote strategically in this case. Lago et al. (2015) state that this effect is likely to be particularly present in countries with a high effective number of political parties in parliament, since the information demand of voters in such cases is higher.

Lago et al. (2015) emphasize that information failure especially affects those with a lower political awareness. This is in line with what Rothschild and Malhotra (2014) found concerning the bandwagon effect, which is also stronger for voters with lower political awareness.

Großer and Schram (2010) investigated information failure in relation to voter turnout and level of support. They found that polls may increase voter turnout when disagreement levels increase. In other words, when a voter knows who leads the polls and disapproves the leading party, he or she is more likely to cast a vote. This is, according to Großer and Schram (2010) particularly the case for the minority.

Uninformed floating voters are less likely to go voting than those who were informed by poll results. The researchers prudently suggest that this may be caused by floating voters' too high assumption of the amount of other floating voters who opt for the same candidate or party, strengthening the motive not to vote. Yet, expected turnout rates are equal for all levels of support. This result is intuitive, since these people were not aware of who was leading or losing according to the polls. In this situation, thus, change in support levels would not be expected. Therefore, turnout rates are not expected to have a confounding effect in case of poll embargoes and are not taken into further consideration in this study.

## Hypotheses

As stated in the Theoretical framework, poll embargoes higher the likeliness of wasted votes because the information failure as described by Lago et al. (2015) decreases the accuracy of voters' electoral expectations. As a consequence, more votes are likely to be casted to non-leading parties. This effect could be especially present in countries with a high effective number of political parties in parliament. The impact of poll embargoes could thus be expected to be more severe in these states than in countries with a lower number of represented parties. I particularly focus on the duration of poll embargoes. It can be expected that the longer such embargo, the longer one is exposed to an information failure and the stronger effect such failure might have. This results in the following hypothesis:

H<sub>1</sub>: The duration of poll embargoes positively correlates with the effective number of political parties that gained a seat in parliament.

Note that the electoral formula, that determines how votes are converted to seats, and the amount of voting districts is also said to be related to the amount of parties in parliament. Duverger's law states that plurality rule for the selection of the elections' winner favours a two-party system. In a proportional system, contrarily, a multiparty system would be favoured (Duverger, 1963, cited in Riker, 1982). Note that Duverger's law is criticized by, among others, Lipson or Rokkan (Benoit, 2006), who argue that rather the party system affects the electoral system. I will take this into consideration by using a country's electoral system as control variable in my analysis.

Furthermore, the duration of the poll embargoes may impact their ability to accurately predict election results. Figure 2 depicts a graphical representation of the durations of poll embargoes during time (t) in countries A (green) and B (purple). Country B imposes an embargo after day P(1), meaning that P(1) is the last day for which polls are available. Country A bans polls sometime after P(1). In order to be able to compare countries with varying poll embargo durations, P(1) is ideally at the same moment in time before the elections for both countries. Both embargoes last until elections E.

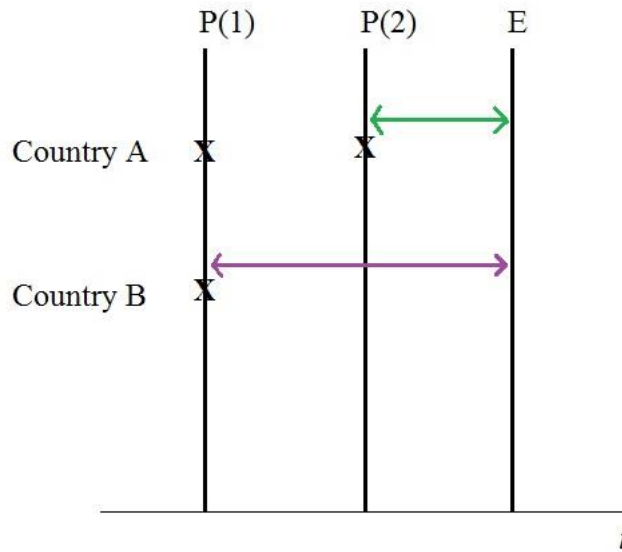


Figure 2. Graphical representation of durations of poll embargoes in countries in A and B. The x-axis represents time ( $t$ ).

Voters increasingly vote responsively and are less influenced by the aforementioned ‘push’ factors. If voters were being exposed to a lower amount of information due to poll embargoes, such push factors, or the voter’s political identity, could become more important. The less information, the greater the influence of one’s own ideals and value orientations could be. Consequently, the polls at a given time point P(1) become worse predictors of election results at time point E than would have been the case if there was no poll embargo and thus no subsequent polls (e.g. at time point P(2)). In other words, the availability of polls, closer to the elections, contributes to a better prediction of the election results. I describe how well poll embargoes forecast the election results with the term ‘goodness of prediction’. This leads to the following hypothesis:

H<sub>2A</sub>: The duration of poll embargoes negatively correlates with the goodness of prediction of poll embargoes at P(1) with the actual election results.

Another effect, as described by Rothschild and Malhotra (2014), could also be possible: polls could become self-fulfilling prophecies and strengthen their own predictions. If voters are increasingly intending to vote for the leading party due to its good position in the polls and thus jump on the bandwagon, the following polls could show a bigger advantage for this party (Schmitt-Beck, 2015). Because of this contagion or cascade effect, the expectation on the ‘goodness of prediction’ as described in H<sub>2A</sub> would not apply, since the results of polls at time point P(1) would

again lead to a more favoured position of the leading party in the election results. The findings of Großer and Schram (2010) and Klor and Winter (2006) would be in line with this. Therefore, the alternative hypothesis is the following:

$H_{2B}$ : The duration of poll embargoes positively correlates with the goodness of prediction of poll embargoes at  $P(1)$  with the actual election results.

$H_{2A}$  and  $H_{2B}$  thus describe opposite effects, as is depicted in Figure 3.

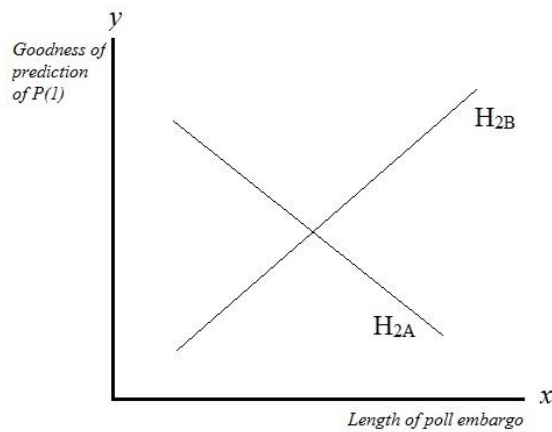


Figure 3. Expected effect according to  $H_{2A}$  and  $H_{2B}$ .

## Methods

A comparative study among 31 democracies with polling embargoes of varying durations was conducted. The scope of this research was limited to parliamentary (legislative) elections for the lower house or First Chamber. I based my selection of countries (see Appendix 1) with poll embargoes from Chung (2012: p.31) and Jennings and Wlezien (2016). For results of the elections, the Global Elections Database made by Dawn Brancati <sup>2</sup> and European Election Database from the Norwegian Centre for Research Data <sup>3</sup> were used. I composed the database of poll results myself, of which I listed my sources in Appendix 1.

For hypothesis H<sub>1</sub>, the independent variable is the duration of the poll embargo and the dependent variable the effective number of political parties in a certain country. A linear regression was run to test the relation between these two variables. In addition, the possible influence of a country's electoral system was controlled for, as previously discussed in the Theoretical framework. For this purpose, I conducted a second test that included a score for the electoral system as a second independent variable, that could have a value of either 1 (proportional representation) or 2 (districts or mixed systems that make use of districts in some way). The scores for all countries can be found in Appendix 1.

For hypotheses H<sub>2A</sub> and H<sub>2B</sub>, I compared the results of electoral polls, that were all published at approximately the same day before election day, with the final election results. This corresponds with the publication date of P(1) (see Figure 2). The latest poll published were not considered for each country, because some poll embargoes might not have been established yet in all countries. Therefore, because the longest embargo in the dataset lasts 30 days, the polls that used, were published  $30 \pm 2$  days before the elections. In other words, I determined the publication date of P(1) to be  $30 \pm 2$  days before election day. When polls published at such date were not available or I was not able to find them, I used the polls closest to that date. This was the case for 13 countries, for which the duration between polling date and election date varied

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<sup>2</sup> The codebook can be downloaded from <http://www.globalelectionsdatabase.com/index.php/index>.

<sup>3</sup> The data per country can be viewed at [http://www.nsd.uib.no/european\\_election\\_database](http://www.nsd.uib.no/european_election_database).

from min. 22 to max. 46 days. Naturally, this operationalisation is likely to result in random fluctuations or noise in the independent variable. However, including these deviating countries enabled a maximisation of the sample. In addition, the assumption that  $H_{2A}$  and  $H_{2B}$  are only supported when a relation between the dependent and independent variable is found despite such noise, is conservative. Namely, if the results still show a correlation despite the non-ideal publication dates, the effect found will only be stronger.

Some parties appeared to be part of the polls but not of the official elections results, and vice versa. To be able to compare the vote percentages of these polls and election results, the data were normalised by recalculating the relative percentage gained by each party in comparison to the total percentage gained by all the parties in the dataset. In other words, when a party gained 11,2% of the 89,4% that all considered parties gained, this value was changed into  $(11,2/89,4)*100 = 12,6\%$ .

For both Hypotheses 2, the independent variable is the duration of the poll embargo and the dependent variable the difference between the prediction of the polls and the election results. In my comparison, I focussed on the absolute differences of each party's share of the total vote according to P(1) and the election results. This equation would be the following:

$$V_{S,i} = | V_{E,i} - V_{P,i} |$$

In this equation,  $V_{S,i}$  is the absolute difference of share of vote of a party  $i$  between  $V_{E,i}$ , a party  $i$ 's share of vote according to election results, and  $V_{P,i}$ , a party  $i$ 's share of vote according to the polls at P(1). Consequently, a linear regression model was based on the means  $\mu$ , calculated by the sum of all  $V_{S,i}$  divided by the amount of parties  $n$  in a country.

Since the amount of democracies is finite, my control variables were limited to the following two. Firstly, I based my sample of countries on the Democracy Index (DI) for 2016 by the Economic Intelligence Unit (EIU, 2017). The EIU considered functioning of government, political culture, and civil liberties, and electoral process and pluralism in their ranking of democracy. The latter is of particular importance for



this study. In fact, it is essential that voters are free to choose the party of their preference and that election results are processed in a fair manner. This decreased the number of countries that could be part of my sample. The EIU scored each country for each of the five aforementioned categories and averaged these five grades for the final score. I used countries that scored a sufficient grade (6.0 or higher) and were classified as ‘full’ or ‘flawed’ democracies. This variable was controlled for by running a second linear regression that included a country’s score on the Democratic Index (EIU, 2017).

Secondly, I considered how the poll embargo was being enforced: which institution is responsible and how is ensured that the restriction is actually imposed? The embargo is naturally effective only when its restriction is not violated. For this purpose, I searched for polls published later than allowed by the poll embargo.

I regard these two control variables most important for this study. Other control variables, such as the methods used for the data collection of the polls, went beyond the scope of this study.

## Results

To begin the analysis, I first focus on  $H_1$ . I investigated whether a positive correlation between the duration of poll embargoes and the effective number of political parties in parliament existed by running simple and multiple linear regressions. The descriptive statistics of these can be found in Appendix 2.

The correlation between the effective number of parties in parliament (dependent variable) and the duration of the poll embargo (independent variable) is presented in Figure 4. The scores for the countries are indicated with the blue points and labelled by abbreviations (see Appendix 1 for the corresponding countries). Since some countries have the same score, one point can represent two or more countries. In these cases, grey lines link the various countries to their respective data point.

The regression line is slightly positive, which would support  $H_1$ , were it not that the correlation is not significant. This is indicated by the very low value for  $R^2$  (0,0111). Furthermore, the p-value of 0,566 is much higher than the standard  $\alpha$ -value of 0,05 that was used for running the regression. Therefore, the data suggest no significant correlation and therefore  $H_1$  must be rejected. The theory of Lago et al. (2015) on the more severe impact of information failure in multiparty systems is thus neither supported or disproved.

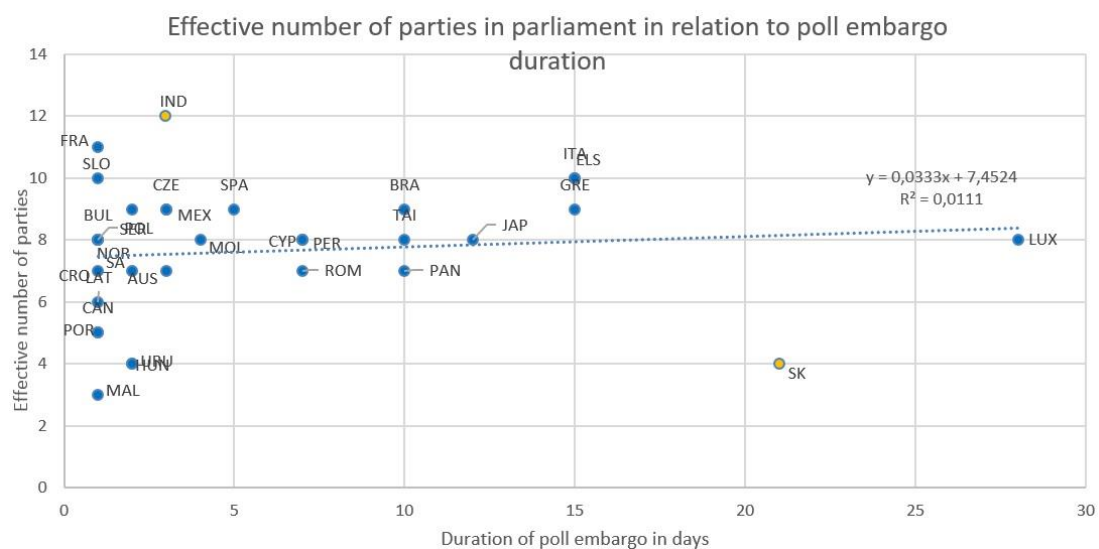


Figure 4. The relation between the duration of the poll embargo in days and the effective number of parties in parliament.

As can be seen in Figure 4, many countries have poll embargoes of approximately 24 – 48 hours, whereas poll embargoes of longer duration are less frequent. Instead of investigating all countries in one group, it could be interesting to examine the difference of means for two groups of countries, namely one group with relatively short embargoes, and another with longer ones. In that case, relations other than linear relations would be tested. The implications of such test are elucidated in the Conclusion and Discussion.

I controlled for the effect of two outliers, i.e. Indonesia and South Korea. These countries strongly deviated from the linear regression line as depicted in Figure 4. They are indicated with an orange value point. When these countries were left out of the sample,  $R^2$  changed to 0,105 and the p-value to 0,081. This model would explain the correlation between the duration of poll embargoes and the effective number of parties slightly better, yet even in this case, the correlation is not significant.

The assumptions of linear regression were done by checking the normality of the distribution of all the variables. The details of this test are provided in Appendix 2. One of the variables in this regression appeared not to be normally distributed, namely the duration of poll embargo. This violates the validity of the linear regression. The consequences of this validation are elaborated on in the Conclusion and Discussion.

To control for the possible confounding effect of a country's electoral system, I ran a second regression that included this variable as an additional independent variable (see Appendix 2). A new value for  $R^2$  of 0,061 was found, which is still too low to conclude it (partly) explains the dependent variable. Also, the new p-value of 0,398 does not meet the standard  $\alpha$ -value of 0,05.  $H_1$  must be rejected in this case too. Consequently, Duverger's law or critiques of this law are neither supported nor rejected.

Similar regressions were run to test both  $H_{2A}$  and  $H_{2B}$ . I examined the relation between the goodness of prediction of poll results and the duration of poll embargoes, and the direction of this possible relation. The detailed scores of the regression are again provided in Appendix 2.



details of this test. The consequences of the violation of the normal distribution are elaborated on in the Conclusion and Discussion.

Three outliers are clearly visible in Figure 5: South Korea, Latvia, and Japan (see the orange value points). When I controlled for the effect of these countries, the  $R^2$  barely differed (0,010) and the p-value changed to a value of 0,604 (see Appendix 2 for the test details). These data neither suggest a significant relation. The model without the outliers thus does not explain the relation between the dependent and independent variable better.

Furthermore, I controlled for the possible effect of a country's score on the Democracy Index (see again Appendix 2). This multiple regression resulted in a  $R^2$  of 0,008 and a p-value of 0,646. These measurements again indicate no significant relation between the independent variable goodness of prediction and dependent variables poll embargo duration and DI-score.

## Conclusion and Discussion

This study focussed on how the duration of poll embargoes impacts voting preferences and party representation in parliament. The results shown here have neither indicated any significant relations between the duration of poll embargoes and the effective number of parties in parliament, nor any such relations between the duration of poll embargoes and the goodness of prediction of polls. Therefore, no valid conclusions can be drawn on the directions of such possible relations.

Consequently, the theories by Lago et al. (2015), Großer and Schram (2010), and Rothschild and Malhotra (2014), which were the basis for the tested hypotheses, can neither be supported or invalidated.

This research investigated the existence of linear relation between the examined variables and did not consider other types of relations, such as exponential or logarithmic ones, or a transformation of the data. Taking into account the results in Figure 4 and Figure 5, however, they do not fit such different relations either. Additionally, the hypotheses were formulated in such way to test for linear relationships. In order to examine different relations, new hypotheses and methods should be formulated that allow for testing them. The latter applies to an investigation of two groups of countries, divided on the basis of their poll embargo duration, as well. Then, two tests need to be conducted in that case as the two groups of countries could not be captured by one linear relationship.

As briefly explained in the Results, it might be that the effects of both  $H_{2A}$  and  $H_{2B}$  are playing a role at the same time, or neither of them is true. In order to test the exact effects, future research could develop an experimental study, for example in a laboratory or controlled environment, in which the two variables are isolated from each other and controlled for per country.

Regarding limitations of this study, the validity of the measures, firstly, can be criticised. Such critique mainly concerns the dataset of polls. Polling organisations are not always transparent about the methods used when conducting their surveys and/or use different methods than their colleagues in other countries or organisations. Ideally, all polls used in the dataset would be conducted using similar methods, but this could

not be ensured. For example, answers such as ‘I don’t know’ or ‘I do not vote’ may be counted differently towards the headline figure, hereby affecting this figure. Future research should take the possible variation in polling methods into consideration.

In addition, the representativeness of polls can be doubted in some cases. This does not necessarily refer to the representativeness of the sample, which can be assumed to be accounted for by those who conducted the electoral surveys, yet to the total voting percentages the parties included in the polls had. Examples of such cases are Peru: 64,6%; Japan: 54%; Panama: 67%; Malta: 74,3%; Moldova: 74,2%; Taiwan: 68%; Uruguay: 62%; El Salvador: 73%. I attempted to avoid this issue by using other poll results, but polls were often subject to limited availability.

Moreover, polls indicate voting preferences at a particular moment in time. As previously discussed in the Methods, day P(1), which was set at  $30 \pm 2$  days before election day, often fell outside that range. This limitation is likely to have caused random fluctuations in the goodness of prediction of polls. In order to improve the validity of the measures, further research could include different polls (ideally all published at or closely to P(1)), using the method of e.g. the Dutch Polling Indicator (Louwerse, 2017), or more elections per country. This would increase the sample and improve the results’ validity, and may also allow for an investigation how the impact of poll embargoes changes over time.

Additionally, the small sample might be seen as a limitation of this study. However, the amount of contemporary democracies is limited, of which only a part enforces a poll embargo, and I have further restricted the sample by selecting full and flawed democracies only. The sample used is thus the full population and does not deteriorate the generalisability of this research. Nevertheless, the possibly different polling methods I briefly discussed before do negatively impact the generalisability. In addition, the assumption of normality of distribution is violated because not all variables appear to be normally distributed. For the variable duration of poll embargo, this might be not surprising, since countries arbitrarily determine the duration of such embargo (most often for a period of one or two days, see Appendix 2).

There might also be a tension between the different levels of analysis the hypotheses and results relate to. The hypotheses are based on micro-level theories, namely

individual voting behaviour, whereas the results of this study are macro-level outcomes: the election outcomes of a country as a whole. Nevertheless, there is not necessarily a problematic mismatch here, because the main outcomes (election results or number of parties) are merely aggregated individual preferences. Future research could further investigate this connection between the micro- and macro-level. For this purpose, the two effects as predicted by H<sub>2A</sub> and H<sub>2B</sub> need to be isolated to allow for a precise explanation of the mechanism behind the relation – if any is found – between poll embargo duration and goodness of prediction.

Considering these limitations, future research should use an enhanced operationalisation to increase our understanding of the effect of polls and poll embargoes. Besides the suggestions made previously in this section, this study could be extended by including on presidential elections as well. Might the impact of polls – and embargoes – be different when particular persons are voted for instead of parties? A comparison between presidential and parliamentary systems would be another interesting perspective. Furthermore, this study did not consider the specifics of the various electoral systems that exist. Although I did take into account whether a country had proportional representation or any system that included districts, the latter category is diverse and requires further investigation. Another aspect of elections that might have an effect on the influence of polls, is the duration of election cycles. It might be the case that the longer the period between two elections, the more time and, consequently, impact polls might have on voting behaviour.

Since this study has not found statistically significant proof for the effects of poll embargoes on parliamentary elections, it is difficult to propose evidence-driven policies on the basis of the results presented. This research can rather be considered a starting point for future academic studies. Taking the societal relevance of poll embargoes into account, it would be valuable as well as recommended to continue the study of poll embargoes. For this purpose, an improved operationalisation of this research, taking into account the various aforementioned suggestions, could contribute to increased understanding of this topic.



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## Appendix 1

Country	Abbreviation	Duration of poll embargo	Electoral system	DI-score	Source
Australia	AUS	2-3 days	2	9,01	ReachTel (2016, June 3). 7 News – National Poll – 3 June 2016. Retrieved from: <a href="https://www.reachtel.com.au/blog/7-news-national-poll-3june16">https://www.reachtel.com.au/blog/7-news-national-poll-3june16</a>
Brazil	BRA	10 days	1	6,90	Globo.com (2014, September 3). Dilma tem 35%, Marina, 34%, e Aécio, 14%, diz pesquisa Datafolha. Retrieved from: <a href="http://g1.globo.com/politica/eleicoes/2014/noticia/2014/09/dilma-tem-35-marina-34-e-aecio-14-diz-pesquisa-datafolha.html">http://g1.globo.com/politica/eleicoes/2014/noticia/2014/09/dilma-tem-35-marina-34-e-aecio-14-diz-pesquisa-datafolha.html</a>
Bulgaria	BUL	1 day	1	7,01	AlphaResearch (2017). ОБЩЕСТВЕНИ НАГЛАСИ НА СТАРТА НА ПРЕДИЗБОРНАТА КАМПАНИЯ Февруари 2017. Retrieved from: <a href="http://alpharesearch.bg/userfiles/file/0217-Alpha_Research_Public_Opinion.pdf">http://alpharesearch.bg/userfiles/file/0217-Alpha_Research_Public_Opinion.pdf</a>
Canada	CAN	1 day	2	9,15	EKOS Politics (2015, September 17). A Mid-Campaign Check-Up: What Are The Forces Sorting The Electorate And What Are The Prospects For Parties In The Home Stretch? <a href="http://www.ekospolitics.com/wp-content/uploads/full_report_september_17_2015.pdf">http://www.ekospolitics.com/wp-content/uploads/full_report_september_17_2015.pdf</a>
Croatia	CRO	1 day	2	6,75	Index (2016, April 8). Novi CRO Demoskop: SDP-ova koalicija ima prednost od čak 8 posto pred HDZ-om . Retrieved from: <a href="http://www.index.hr/vijesti/clanak/novi-cro-demoskop-sdpova-koalicija-ima-prednost-od-cak-8-posto-pred-hdzom/910622.aspx">http://www.index.hr/vijesti/clanak/novi-cro-demoskop-sdpova-koalicija-ima-prednost-od-cak-8-posto-pred-hdzom/910622.aspx</a>
Cyprus	CYP	7 days	1	7,65	Electograph (2016, April 24). CYPRUS, April 2016. IMR poll. Retrieved from: <a href="http://www.electograph.com/2016/04/cyprus-april-2016-imr-poll_24.html">http://www.electograph.com/2016/04/cyprus-april-2016-imr-poll_24.html</a>
Czech Republic	CZE	3 days	1	7,82	Centrum pro výzkum veřejného mínění (CVVM, 2013). Postoje k politickým stranám – září 2013. Retrieved from: <a href="https://cvvm.soc.cas.cz/media/com_form2content/documents/c6/a3726/f77/pv131016.pdf">https://cvvm.soc.cas.cz/media/com_form2content/documents/c6/a3726/f77/pv131016.pdf</a>
El Salvador	ELS	15 days	1	6,64	Centro de Investigación de la Opinión Pública Salvadoreña (CIOPS, 2015, January 27). LISTOS PARA LAS ELECCIONES MARZO 2015. Retrieved from: <a href="http://www.utec.edu.sv/media/publicaciones/flips/investigaciones_ciops/enero2015/files/publication.pdf">http://www.utec.edu.sv/media/publicaciones/flips/investigaciones_ciops/enero2015/files/publication.pdf</a>
France	FRA	1 day	2	7,92	BVA (2012). Intention de vote aux élections législatives de 2012 et questions d'actualité. Retrieved from: <a href="http://www.bva.fr/data/sondage/sondage_fiche/1136/fichier_intention_de_vote_legislatives_et_questions_dactualite_bva-orange-spqr-rtl10f8d.pdf">http://www.bva.fr/data/sondage/sondage_fiche/1136/fichier_intention_de_vote_legislatives_et_questions_dactualite_bva-orange-spqr-rtl10f8d.pdf</a>
Greece	GRE	15 days	1	7,23	Eklogika (2015, August 24). Πανελλαδική δημοσκόπηση της εταιρείας INTERVIEW για λογαριασμό της Βεργίνα Τηλεόραση. Retrieved from: <a href="https://www.eklogika.gr/uploads/files/Dimoskopiseis/dimoskopisi_interview_vergina_24-8-2015.pdf">https://www.eklogika.gr/uploads/files/Dimoskopiseis/dimoskopisi_interview_vergina_24-8-2015.pdf</a>

Hungary	HUN	2-3 days	2	6,72	Ipsos (2014, March 13). Erősödött a Fidesz, a Jobbik és az LMP. Retrieved from: <a href="http://ipsos.hu/hu/news/erosodott-a-fidesz-a-jobbik-es-az-lmp">http://ipsos.hu/hu/news/erosodott-a-fidesz-a-jobbik-es-az-lmp</a>
Indonesia	IND	3 days	2	6,97	Detiknews (2014, March 26). Survei Charta Politika: PDIP, Golkar, dan Gerindra Masuk Tiga Besar. Retrieved from: <a href="http://news.detik.com/survei/2537317/survei-charta-politika-pdip-golkar-dan-gerindra-masuk-tiga-besar">http://news.detik.com/survei/2537317/survei-charta-politika-pdip-golkar-dan-gerindra-masuk-tiga-besar</a>
Italy	ITA	15 days	1	7,98	Scenari Politici (2013, January 24). Sondaggio TECNE': IBC 35,2% (+7,6%), CDX 27,6%, MONTI 15%, M5S 14%. Retrieved from: <a href="http://scenaripolitici.com/2013/01/sondaggio-tecne-ibc-352-76-cdx-276-monti-15-m5s-14.html">http://scenaripolitici.com/2013/01/sondaggio-tecne-ibc-352-76-cdx-276-monti-15-m5s-14.html</a>
Japan	JAP	12 days	2	7,99	NHK Broadcasting Culture Institute (2014). NHK 沖縄 三月 服装. Retrieved from: <a href="http://www.nhk.or.jp/bunken/yoron/political/2014.html">http://www.nhk.or.jp/bunken/yoron/political/2014.html</a>
Latvia	LAT	1 day	1	7,31	LSM (2014, September 4). Nedaudz pieaudzis atbalsts «Saskaņai» un «Vienotībai», sarucis - ZZS un NA. Retrieved from: <a href="http://www.lsm.lv/lv/raksts/latvija/zinas/nedaudz-pieaudzis-atbalsts-saskanjai-un-vienotiibai-sarucis-zzs-.a97369/">http://www.lsm.lv/lv/raksts/latvija/zinas/nedaudz-pieaudzis-atbalsts-saskanjai-un-vienotiibai-sarucis-zzs-.a97369/</a>
Luxemburg	LUX	1 month	2	8,81	Deloy, C. (2013, September 26). General Elections in Luxembourg: the end of the Juncker era? Retrieved from: <a href="http://www.robert-schuman.eu/en/doc/oeo/oeo-1461-en.pdf">http://www.robert-schuman.eu/en/doc/oeo/oeo-1461-en.pdf</a>
Malta	MAL	1 day	2	8,39	Debono, J. (2013, March 4). MaltaToday electoral survey: PN and Labour lose points, Greens at 2.4%. Retrieved from: <a href="http://www.maltatoday.com.mt/news/data_and_surveys/25103/maltatoday-electoral-survey-20130304#b">http://www.maltatoday.com.mt/news/data_and_surveys/25103/maltatoday-electoral-survey-20130304#b</a>
Mexico	MEX	3 days	2	6,47	Parametría (2015). Toma PRI ventaja sobre Acción Nacional. Retrieved from: <a href="http://www.parametria.com.mx/carta_parametrica.php?cp=4754">http://www.parametria.com.mx/carta_parametrica.php?cp=4754</a>
Moldova	MOL	4-5 days	1	6,01	Preasca, D. (2014, October 27). Sondaj: În viitorul Parlament de la Chișinău ar putea accede șase partide. Retrieved from: <a href="http://www.moldova.org/sondaj-in-viitorul-parlament-de-la-chisinau-ar-putea-accede-sase-partide/">http://www.moldova.org/sondaj-in-viitorul-parlament-de-la-chisinau-ar-putea-accede-sase-partide/</a>
Norway	NOR	1 day	2	9,93	Poll of Polls (2017, June 6). Gjennomsnitt av nasjonale meningsmålinger om stortingsvalg. Retrieved from: <a href="http://www.pollofpolls.no/?cmd=Stortinget&amp;do=visallesnitt">http://www.pollofpolls.no/?cmd=Stortinget&amp;do=visallesnitt</a>
Panama	PAN	10 days	1	7,13	Dichter and Neira Research Network (2014, March 23). Encuesta Electoral. Retrieved from: <a href="http://www.as-coa.org/sites/default/files/encuestaSP-DNOP_marzo_2014_medicio%CC%81n_MINI.pdf">http://www.as-coa.org/sites/default/files/encuestaSP-DNOP_marzo_2014_medicio%CC%81n_MINI.pdf</a>
Peru	PER	7 days	2	6,65	CPI (2016). ESTUDIO DE OPINIÓN PÚBLICA : Intención de voto por candidatos para Presidente del Perú y por listas para el Congreso de la República y Evaluación de la Gestión Presidencial. Retrieved from: <a href="http://cpi.pe/images/upload/paginaweb/archivo/23/opnac201603_01.pdf">http://cpi.pe/images/upload/paginaweb/archivo/23/opnac201603_01.pdf</a>
Poland	POL	1 day	2	6,83	Parlamentarny (2015, September 25). Sondaż IBRiS: zwycięstwo PiS, Sejm bez Zjednoczonej Lewicy Retrieved from: <a href="http://www.parlamentarny.pl/badania-opinii-i-rankingi/sondaz-ibris-zwyciestwo-pis-sejm-bez-zjednoczonej-lewicy,715.html">http://www.parlamentarny.pl/badania-opinii-i-rankingi/sondaz-ibris-zwyciestwo-pis-sejm-bez-zjednoczonej-lewicy,715.html</a>
Portugal	POR	1 day	2	7,86	Ferrão, B. (2015, September 4). Sondagem: coligação volta a subir e PS a cair. Retrieved from: <a href="http://expresso.sapo.pt/politica/2015-09-04-Sondagem-coligacao-volta-a-subir-e-PS-a-cair">http://expresso.sapo.pt/politica/2015-09-04-Sondagem-coligacao-volta-a-subir-e-PS-a-cair</a>

Romania	ROM	7 days	1	6,62	Suta, D. (2016, November 6). Sondaj alegeri parlamentare 2016. Cum stau partidele la intenția de vot. Retrieved from: <a href="https://huff.ro/alegeri-parlamentare/sondaj-alegeri-parlamentare-2016-cum-stau-partidele-la-intentia-de-vot-93828">https://huff.ro/alegeri-parlamentare/sondaj-alegeri-parlamentare-2016-cum-stau-partidele-la-intentia-de-vot-93828</a>
Serbia	SER	2 days	1	6,57	Novosti (2016, March 26). Naprednjaci dostigli 52,6 odsto. Retrieved from: <a href="http://www.novosti.rs/vesti/naslovna/politika/aktuelno.289.html:597419-Naprednjaci-dostigli-526-odsto?news_id=316915">http://www.novosti.rs/vesti/naslovna/politika/aktuelno.289.html:597419-Naprednjaci-dostigli-526-odsto?news_id=316915</a>
Slovakia	SLO	1 day	1	7,29	Electograph (2016, February 7). SLOVAKIA, January 2016. Focus poll. Retrieved from: <a href="http://www.electograph.com/2016/02/slovakia-january-2016-focus-poll.html">http://www.electograph.com/2016/02/slovakia-january-2016-focus-poll.html</a>
South Africa	SA	48 hours	2	7,41	Ipsos (2014). Political party support pre-election. Retrieved from: <a href="http://www.ipsos.co.za/SitePages/Political%20party%20support%20pre-election.aspx">http://www.ipsos.co.za/SitePages/Political%20party%20support%20pre-election.aspx</a>
South Korea	SK	21 days	2	7,92	Realmeter (2014, March 14). 총선 내홍 동병상련 여야3 당 동반 지지층 이탈 조 Retrieved from: <a href="http://www.realmeter.net/2016/03/%EC%B4%9D%EC%84%A0-%EB%82%B4%ED%99%8D-%EB%8F%99%EB%B3%91%EC%83%81%EB%A0%A8-%EC%97%AC%EC%95%BC-3%EB%8B%B9-%EB%8F%99%EB%B0%98-%EC%A7%80%EC%A7%80%EC%B8%B5-%EC%9D%B4%ED%83%88-%EC%A1%B0%EC%A7%90/?ckattempt=1">http://www.realmeter.net/2016/03/%EC%B4%9D%EC%84%A0-%EB%82%B4%ED%99%8D-%EB%8F%99%EB%B3%91%EC%83%81%EB%A0%A8-%EC%97%AC%EC%95%BC-3%EB%8B%B9-%EB%8F%99%EB%B0%98-%EC%A7%80%EC%A7%80%EC%B8%B5-%EC%9D%B4%ED%83%88-%EC%A1%B0%EC%A7%90/?ckattempt=1</a>
Spain	SPA	5 days	2	8,30	NC Report (2016). TRACKING 28/05/2016. Retrieved from: <a href="http://www.larazon.es/documents/10165/0/video_content_4904150_20160530110107.pdf">http://www.larazon.es/documents/10165/0/video_content_4904150_20160530110107.pdf</a>
Taiwan	TAI	10 days	1	7,79	Kai, M. (2015, December 14). 最新民調：英仁領先朱玄 23% 宋瑩好感度增. Retrieved from: <a href="http://news.tvbs.com.tw/politics/630205">http://news.tvbs.com.tw/politics/630205</a>
Uruguay	URU	48 hours	2	8,17	El Pais (September 25, 2014). Elección abierta: FA y blancos crecen. Retrieved from: <a href="http://www.elpais.com.uy/informacion/eleccion-abierta-fa-blancos-crecen.html">http://www.elpais.com.uy/informacion/eleccion-abierta-fa-blancos-crecen.html</a>

Table 1. Background information per country including abbreviation, poll embargo duration, and source used for the poll results.

## Appendix 2

### *Hypothesis 1*

The models for Hypothesis 1 are provided below. They are all run for a standard  $\alpha$ -value of 0,05.

The first set of tables shows the model that includes the duration of the poll embargo (duration\_poll\_embargo) as independent variable and the effective number of parties in parliament as independent variable. It can be derived from the data that the regression is not statistically significant, taking the very low  $R^2$  (0,011; see Model Summary) and high p-value (0,566; see ANOVA or Coefficients) into consideration. Therefore,  $H_1$  must be rejected.

#### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	Duration_poll_embargo <sup>b</sup>	.	Enter

a. Dependent Variable: Number\_party\_name

b. All requested variables entered.

#### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,105 <sup>a</sup>	,011	-,022	2,142

a. Predictors: (Constant), Duration\_poll\_embargo

b. Dependent Variable: Number\_party\_name

#### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,543	1	1,543	,336	,566 <sup>b</sup>
	Residual	137,675	30	4,589		
	Total	139,219	31			

a. Dependent Variable: Number\_party\_name

b. Predictors: (Constant), Duration\_poll\_embargo



Coefficients <sup>a</sup>					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	7,452	,517		,000
	Duration_poll_embargo	,033	,057	,105	,566

a. Dependent Variable: Number\_party\_name

Residuals Statistics <sup>a</sup>					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	7,49	8,38	7,66	,223	32
Residual	-4,486	4,448	,000	2,107	32
Std. Predicted Value	-,764	3,263	,000	1,000	32
Std. Residual	-2,094	2,076	,000	,984	32

a. Dependent Variable: Number\_party\_name

Table 2. The model for the regression between poll embargo duration and the effective number of parties in parliament.

The output below also includes the electoral system (Electoral\_system) as a control variable in the aforementioned linear regression. This regression is neither statistically significant, due to the  $R^2$  of 0,061 (see Model Summary) and the p-value of 0,398 (see ANOVA or Coefficients).

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	Electoral_system, Duration_poll_embargo <sup>b</sup>	.	Enter

a. Dependent Variable: Number\_party\_name

b. All requested variables entered.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,248 <sup>a</sup>	,061	-,003	2,123

a. Predictors: (Constant), Electoral\_system, Duration\_poll\_embargo

b. Dependent Variable: Number\_party\_name

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8,562	2	4,281	,950	,398 <sup>b</sup>
	Residual	130,657	29	4,505		
	Total	139,219	31			

a. Dependent Variable: Number\_party\_name

b. Predictors: (Constant), Electoral\_system, Duration\_poll\_embargo

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8,987	1,332		6,747	,000
	Duration_poll_embargo	,031	,057	,098	,544	,590
	Electoral_system	-,954	,764	-,225	-1,248	,222

a. Dependent Variable: Number\_party\_name

### Residuals Statistics<sup>a</sup>

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	7,11	8,50	7,66	,526	32
Residual	-4,110	4,828	,000	2,053	32
Std. Predicted Value	-1,040	1,601	,000	1,000	32
Std. Residual	-1,936	2,275	,000	,967	32

a. Dependent Variable: Number\_party\_name

Table 3. The model for the regression between poll embargo duration and the effective number of parties in parliament, including electoral system as control variable.

The two graphs below show that both the variable for the effective number of parties in parliament (see Histogram) as well as its standardised residuals (see P-P-plot) are normally distributed. This means that this assumption regarding the normality of distribution of this variable is not violated.

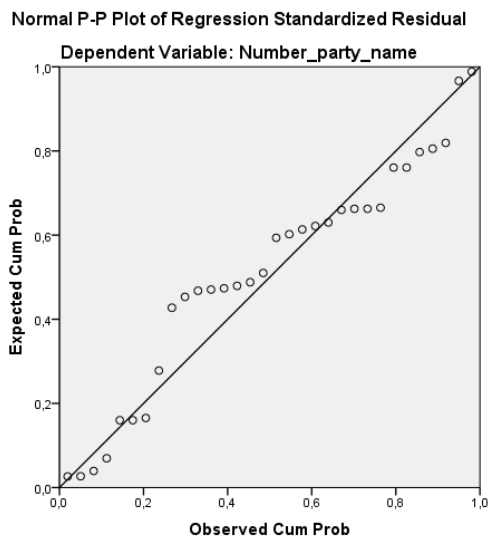
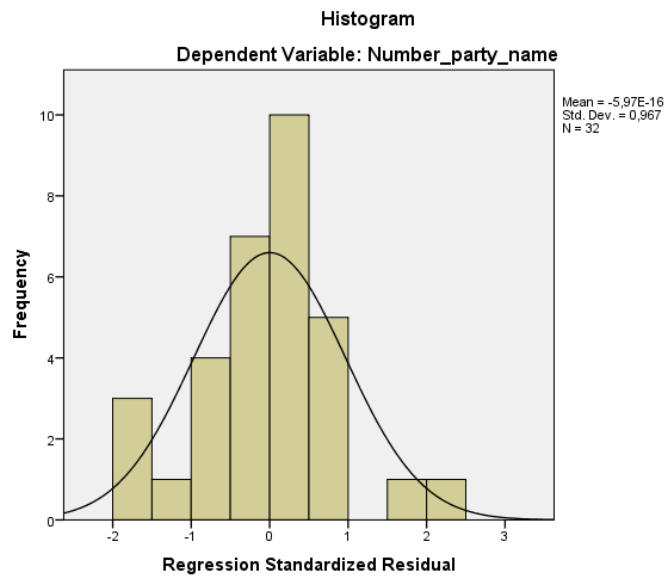


Figure 6. Graphs for testing normality of distribution of the variable Numer\_party\_name.

The variable Duration\_poll\_embargo was also tested for normality of distribution. The histogram does not indicate such distribution, neither does the P-P-plot, since the data points are not situated close to the diagonal line.

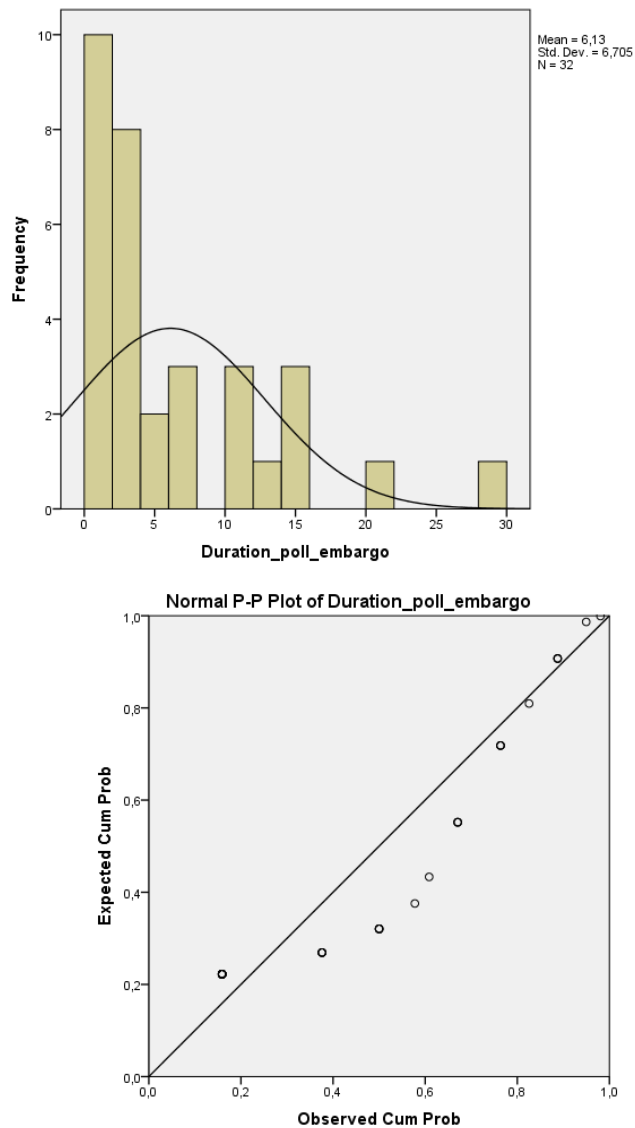


Figure 7. Graphs for testing normality of distribution of the variable *Duration\_poll\_embargo*.

Lastly, a regression was run excluding two outliers: Japan and South Korea. The selection of these countries was based on their deviation of the regression line as visible in Figure 4. The results of this test are presented in the following tables. It can be derived from the data that this regression is not statistically significant, seen the  $R^2$  of 0,105 (see Model Summary) and p-value of 0,081 (see ANOVA or Coefficients).

Variables Entered/Removed <sup>a</sup>			
Model	Variables Entered	Variables Removed	Method
1	Duration_poll_e mbargo <sup>b</sup>	.	Enter

a. Dependent Variable: Number\_party\_name

b. All requested variables entered.

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,324 <sup>a</sup>	,105	,073	1,849

a. Predictors: (Constant), Duration\_poll\_embargo

b. Dependent Variable: Number\_party\_name

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11,237	1	11,237	3,287	,081 <sup>b</sup>
	Residual	95,729	28	3,419		
	Total	106,967	29			

a. Dependent Variable: Number\_party\_name

b. Predictors: (Constant), Duration\_poll\_embargo

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7,069	,459		15,387	,000
	Duration_poll_embargo	,099	,054	,324	1,813	0,081

### Residuals Statistics<sup>a</sup>

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	7,17	9,83	7,63	,622	30
Residual	-4,167	3,833	,000	1,817	30
Std. Predicted Value	-,749	3,524	,000	1,000	30
Std. Residual	-2,254	2,073	,000	,983	30

a. Dependent Variable: Number\_party\_name

Table 4. The model for the regression between poll embargo duration and the effective number of parties in parliament, excluding three outliers.

### *Hypotheses 2A and 2B*

The following tables concern tests for Hypothesis 2A and 2B. They are also run for a standard  $\alpha$ -value of 0,05.

The table below concerns the regression between the duration of poll embargo (Duration\_poll\_embargo) as independent variable and the goodness of prediction of polls (Goodness\_prediction) as dependent variable. The correlation found is not significant, because of the very low  $R^2$  (0,020; see Model Summary) and high p-value (0,439; see ANOVA or Coefficients). Therefore, both  $H_{2A}$  and  $H_{2B}$  must be rejected.

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	Duration_poll_embargo <sup>b</sup>	.	Enter

a. Dependent Variable: Goodness\_prediction

b. All requested variables entered.

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,142 <sup>a</sup>	,020	-,013	2,12930353400 0000

a. Predictors: (Constant), Duration\_poll\_embargo

b. Dependent Variable: Goodness\_prediction

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,785	1	2,785	,614	,439 <sup>b</sup>
	Residual	136,018	30	4,534		
	Total	138,803	31			

a. Dependent Variable: Goodness\_prediction

b. Predictors: (Constant), Duration\_poll\_embargo

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,004	,514		5,849	,000
	Duration_poll_embargo	,045	,057	,142	,784	,439

### Residuals Statistics<sup>a</sup>

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3,04847693400 0000	4,25543594400 0000	3,27757575800 0000	,299710132000 000	32
Residual	- 2,34419012100 0000	5,06985616700 0000	,0000000000000 000	2,09467840400 0000	32
Std. Predicted Value	-,764	3,263	,000	1,000	32
Std. Residual	-1,101	2,381	,000	,984	32

a. Dependent Variable: Goodness\_prediction

Table 5. The model for the regression between poll embargo duration and goodness of prediction.

Below, the model includes a country's score on the Democracy Index (Score\_DI) as control variable. Since Andorra does not have a DI-score, it is left out of the sample in this test. Seen the  $R^2$  of 0,021 and p-value of 0,738, it can be concluded that the correlation is not significant and that both hypotheses again must be rejected.

### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	Score_DI, Duration_poll_e mbargo <sup>b</sup>	.	Enter

a. Dependent Variable: Goodness\_prediction

b. All requested variables entered.

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,144 <sup>a</sup>	,021	-,047	2,16498506500 0000

a. Predictors: (Constant), Score\_DI, Duration\_poll\_embargo

b. Dependent Variable: Goodness\_prediction

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2,875	2	1,437	,307	,738 <sup>b</sup>
	Residual	135,928	29	4,687		
	Total	138,803	31			

a. Dependent Variable: Goodness\_prediction

b. Predictors: (Constant), Score\_DI, Duration\_poll\_embargo

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,456	3,300		1,047	,304
	Duration_poll_embargo	,045	,058	,144	,780	,442
	Score_DI	-,061	,436	-,026	-,139	,891

Residuals Statistics <sup>a</sup>					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2,89983773200 0000	4,19397640200 0001	3,27757575800 0000	,304533892000 000	32
Residual	- 2,33799910500 0000	5,05973672900 0000	,000000000000 000	2,09398254300 0000	32
Std. Predicted Value	-1,240	3,009	,000	1,000	32
Std. Residual	-1,080	2,337	,000	,967	32

a. Dependent Variable: Goodness\_prediction

Table 6. The model for the regression between poll embargo duration and goodness of prediction, including the DI-score as control variable.



The model below excludes the following three outliers: South Korea, Japan, and Latvia. I based my selection again on their outstanding deviation of the regression line as visible in Figure 5. With a  $R^2$  of 0,008 and p-value of 0,646, the correlation is not statistically significant and both  $H_{2A}$  and  $H_{2B}$  must be rejected.

#### Variables Entered/Removed<sup>a</sup>

Model	Variables Entered	Variables Removed	Method
1	Duration_poll_embargo <sup>b</sup>	.	Enter

a. Dependent Variable: Goodness\_prediction

b. All requested variables entered.

#### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,089 <sup>a</sup>	,008	-,029	1,543508911000000

a. Predictors: (Constant), Duration\_poll\_embargo

b. Dependent Variable: Goodness\_prediction

#### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,515	1	,515	,216	,646 <sup>b</sup>
	Residual	64,325	27	2,382		
	Total	64,840	28			

a. Dependent Variable: Goodness\_prediction

b. Predictors: (Constant), Duration\_poll\_embargo

#### Coefficients<sup>a</sup>

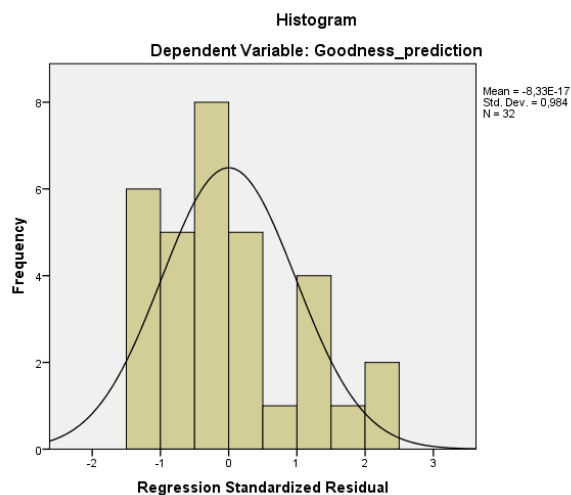
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,915	,387		7,538	,000
	Duration_poll_embargo	-,022	,046	-,089	-,465	,646

Residuals Statistics <sup>a</sup>					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2,30986118300 0000	2,89334631000 0000	2,79423592300 0000	,135638055000 000	29
Residual	- 2,08001303700 0000	3,07065367700 0000	- ,0000000000000 001	1,51569566100 0000	29
Std. Predicted Value	-3,571	,731	,000	1,000	29
Std. Residual	-1,348	1,989	,000	,982	29

a. Dependent Variable: Goodness\_prediction

Table 7. The model for the regression between poll embargo duration and goodness of prediction, excluding three outliers.

The following two graphs show how the variable Goodness\_prediction is distributed. As can be seen in the histogram, it is not normally distributed, which violates the assumption on linearity of the correlation. The standardised residuals, however, appear to be normally distributed.



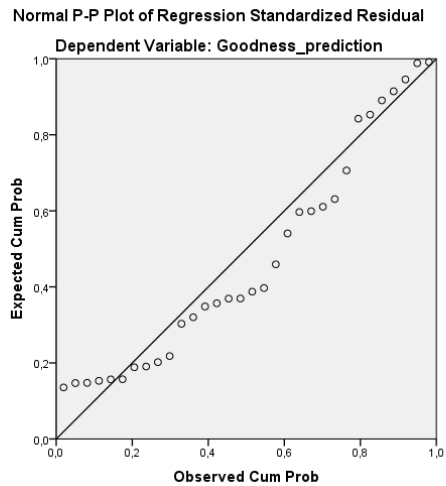
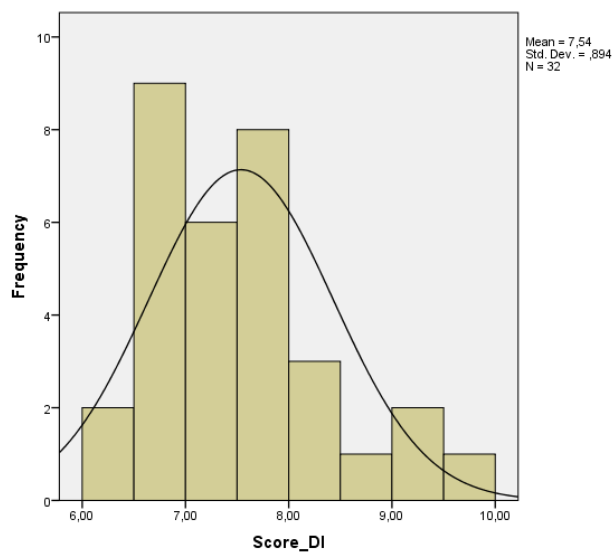


Figure 8. Graphs for testing normality of distribution of the variable *Goodness\_prediction*.

The variable *Score\_DI* was tested for normality of distribution too. The histogram below does not indicate a normal distribution, hereby violating the assumption of linearity. The residuals are however more normally distributed.



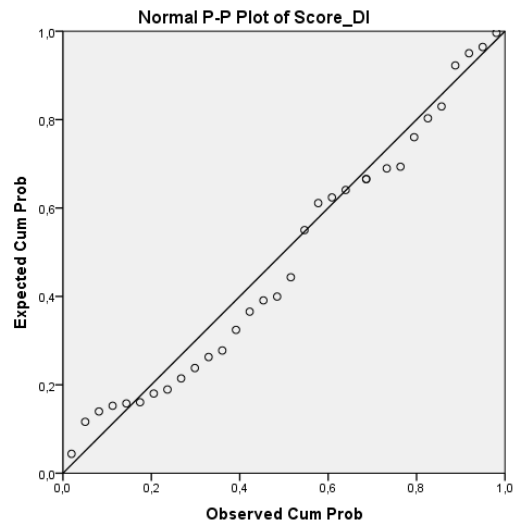


Figure 9. Graphs for testing normality of distribution of variable *Socre\_DI*.