



LUNDS UNIVERSITET

“Do we care more when we think differently?” - On the
relationship between Ideological Polarisation and Voter
Turnout

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Abstract

Polarisation is a hotly discussed and eagerly researched topic these days. This research specifically examines the effects of one type of polarisation: Ideological Polarisation on voter turnout. It does so by measuring the average ideological distance between all parties in European multiparty systems between 1999-2021 and correlating this to voter turnout in elections. Two of the ideological measurements are one-dimensional, while one is two-dimensional. Results show that ideological polarisation correlates with turnout on a simple level, not taking other factors into account. Additionally, party competition was likely centrifugal in most European countries during this time period. However, research also shows that other variables such as GDP per capita, Gini-index or geographical location correlate more strongly with voter turnout than ideological polarisation. Multivariate models confirm that the impact of ideological polarisation on voter turnout is miniscule at best, if statistically significant

Keywords: Ideological polarisation, voter turnout, multiparty systems, Europe, electoral competition.

Words: 140

1. Introduction

1.1. Preface

On January the 20th of 2017, Donald J. Trump was inaugurated, becoming the 45th President of the United States. Already during his electoral campaign, he garnered attention for his flamboyant personality and vulgar statements, a trend which continued in office. The election of President Trump was as much a contributing factor to the civil unrest that followed the years after as it was a sign of the times. In many parts of the world society as a whole became more polarised during these recent years. That is if you were to believe the research on the subject (Boxell et. al. 2020) and the media narrative (NY Times 2020).

While polarisation certainly seems to be on the rise, so too is the phenomenon of voter apathy, especially among young voters (Recklinghäuser Zeitung 2021). Voter apathy means that the voter loses interest in politics in general, but specifically in elections. There are multiple predicted causes for this such as low trust in politicians or voter fatigue but they all lead to the same problem, that of lower political participation, which serves as a pillar for any functioning democracy. In contrast, although it sometimes is anchored in similar feelings, the rise of populism in Europe drives citizen engagement in politics. 18th Century philosopher Jean-Jacques Rousseau (1762) was one of the first to emphasize the importance of political participation, as he famously proposed that higher political participation from citizens results in politics better representing the “will of the people” (fr. “volonté Générale”). ((Wolff 2018, pp.) Ultimately, voter turnout is an indication of how much we care about our democracy.

Some theorists find that extreme polarisation may lead to a certain level of dehumanisation, which lowers the threshold for political violence within society, and ultimately may pose a danger to the norms (e.g. the right to free speech) of a peaceful and functioning democracy (Harteveld 2021, pp.1-2). With the higher threat of violence, one might be afraid of expressing their opinion by going to the booths and casting their vote. The most recent U.S. elections seem to disprove this thesis, as turnout reached numbers that hadn’t been seen since the 1960’s. This makes one wonder about the relationship between polarisation and turnout: Does one influence the other? And if so, in which direction?

In these polarised times, elections are seen to be of greater importance than usual, which according to theorists should motivate more of the electorate to cast their votes. The cost of the “wrong” parties winning the election are perceived as being too high, which keeps previous voters engaged as well as mobilising non-voters (Rogowski 2014, pp. 480). This is often referred to as the *mobilisation hypothesis* and permutations of this argument have been made by the likes of Downs (1957) and Abramovitz (2010). If polarisation really increases voter turnout, but at the cost of a lower threshold for violence there is an interesting discussion to be held about the desirability of a certain degree of polarisation within society, in particular because many western countries have experienced a lower degree of turnout since the 1980’s (Caramani 2020, pp.325). Higher voter turnout indicates a higher degree of political participation and causes the parliament to be a more accurate representation of the so-called “volonté générale”. This aspect of polarisation has to be weighed against the previously mentioned effects it has on social peace, which could make for interesting normative considerations.

But how do we measure polarisation? And has polarisation really increased during the later years? If so, what causes this increased polarisation? Different answers have been provided so far: The rise of social identity and group-memberships could have resulted in a more “Us and Them”-situation, increased ideological differences between parties and their effect on the perceptions of public policy might contribute or it could simply be a narrative that is mainly manufactured by mainstream media. This essay aims to provide answers to some of the questions above by focusing on the ideological aspects of polarisation.

1.2. Previous research

A lot of research has been conducted on polarisation, partly because it is both a wide and ambiguous concept, partly because it is one of the most salient questions of our time and can be linked to other fields within political science such as the rise of populism, as well as other disciplines within social science such as sociology or studies of media and communication.

Originally the study of polarisation consisted of analysing voter positions on issues and subsequently determining the polarisation in society as a whole (Druckmann et. al. 2019, pp.114). During more recent years the study of polarisation has become more divided into two distinct groups: the studies of affective and ideological polarisation.

Affective polarisation focuses on the “affect” of individuals towards other individuals and/or parties (Boxell et. al. 2021. pp.6). One way to operationalise this is by looking at “outparty dislike”, which also might give hints on the strength of partisanship. This is most commonly done by conducting surveys in which participants fill out (Harteveld & Wagner 2021, pp.3). Through problematising common ways of operationalising affective polarisation, Druckmann et. al (2017) find that affective polarisation can occur between members of different parties (e.g. through dislike of the other person or unwillingness to interact with them) but is even stronger between individuals and party elites. Consequently, they find that an increase in affective polarisation may drive down trust in government and feelings of being represented in the political system (Druckmann et. al. 2017, pp.120-121). On a closing note, it is important to remember that polarisation generally implies a two-way relationship, and that unreciprocated dislike is better described as “antipathy”.

The definition of ideological polarisation is more contested, but I will provide some different examples of previous research that approaches it. Munoz & Meguid (2019) look at something they call “party polarisation”, which is the range of policy alternatives available to voters. When combined with surveys about alienation and indifference they find that party polarisation increases voter turnout on, but depending on how far away the voter stands from the policy alternatives (Munoz & Meguid 2019, pp.1-8). Druckmann et. al. (2013) also discuss “elite polarisation”, which is the result of high ideological inter-party distance combined with high ideological intra-party homogeneity. They find that polarised environments fundamentally change the decision-making of citizens, as reasoning becomes more dependent on partisanship and less rational. This is attributed to the change in preference formation during intense competition (Druckmann et. al. 2013, pp.74-76)

Another problem associated with the operationalisation of affective polarisation and its impact on voter turnout is that in some studies such as the one performed by Wagner (2020) de-facto measures *intention of voting*, rather than actual voter turnout. Now, because these studies are conducted over time the results may still co-vary with changes in actual turnout, but nevertheless its values are never equal to actual turnout. The discrepancy between “Intentional turnout” and turnout is one of the factors that contributed to the rise of populist parties in Europe and voting results in the Brexit-referendum.

Voter turnout is an important variable for democracies because it serves as an indicator for political participation. Political scientists have long studied voter turnout and found that major contributing factors are: compulsory voting, registration requirements, timing of elections, closeness of previous election or income and educational inequality (Caramani 2020, pp.326). Even more or less random variables such as weather (Persson et. al. 2013) and weekday of the election (Sanders & Jenkins 2016) can have an effect on the outcome and turnout of elections in certain countries.

Another quantitative study of party systems with respect to party system polarisation was conducted by Dalton (2008). He studies the change in party polarisation at two different timepoints for a multitude of western democracies. He measures this by creating his own Polarisation Index:

$$PI = \text{SQRT}\{\sum(\text{party vote share}_i) * ([\text{party L/R score}_i - \text{party system average L/R score}] / 5)^2\},$$

He also uses a Fractionalization Index called the Herfindahl-Index, which measures the fragmentation of the party system:

$$\text{Herfindahl} = \sum(\text{party seat share in legislature}_i)^2,$$

These two indices serve as independent variables and their correlation with the accuracy of Left-Right attitude to vote preferences is measured. In the study, a higher polarisation index is shown to correlate with a higher likelihood of voting for the same party as one’s attitude might indicate (Dalton 2008, pp.907-913). Again, this approach to studying party systems from a system-level standpoint is one-dimensional because it utilises a simple Left/Right scale, as shown below:

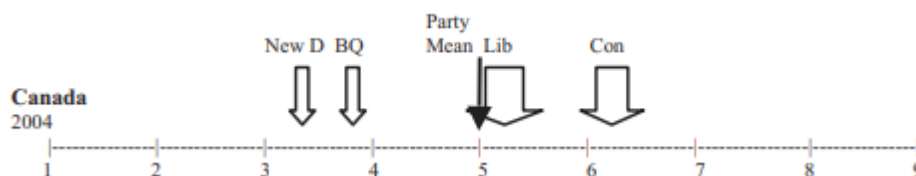


Figure. 1. Dalton’s one-dimensional Left/Right-scale.

The general idea of analysing ideological differences in multi-party systems and their effect on turnout is encouraged by Downs (1957):

“Voters in multiparty systems, however, are given a wide range of ideological choice, with parties emphasizing rather than soft-pedaling their doctrinal differences. Hence regarding ideologies as a decisive factor in one’s voting decision is usually more rational in a multiparty system than in a two-party system.” – (Downs 1957, pp.127)

To summarise, both affective and ideological polarisation have been studied before as subjects using more or less quantitative approaches. Even their effects on voter turnout have been explored, both using “intention to vote” and actual turnout. My research fills a gap in the previous literature because it: Looks at ideological polarisation as a system-level variable from a two-dimensional perspective. Thus, it builds upon the framework developed by Dalton (2008) for measuring ideological polarisation. However, the method still stays true to the spatial logic of voting behaviour. Naturally at the time when Daltons study was written, the GAL/TAN-dimension had not yet solidified itself as a tool of analysis, especially not in combination with the already existing economic Left/Right-dimension.

1.3. Purpose and research question

The purpose of my study is threefold. Firstly, I want to observe if ideological polarisation has increased over time in Europe. Secondly, the primary research purpose is to observe if there exists a correlation between the ideological differences of parties and voting turnout in national parliamentary elections and if this can tell us something about the direction of electoral competition in these countries. Ideological polarisation is categorised into 3 types: Economic (Left/Right), socio-cultural (GAL/TAN) and aggregate. This disaggregation is performed to identify (1.) if any of these variables correlate with voter turnout and (2.) if one of these variables more strongly correlates to voter turnout. The aim of the study is to provide a descriptive ground for further research and discussion about the subject, not necessarily to provide complete/extensive/full explanations to the observed occurrences. However, the research also tests a new method of measuring party system polarisation, which could result in new methodological knowledge being obtained. Because of concerns about both data quality and commensurability I will study the question by analysing European multiparty systems between 1999-2019.

The main research question is:

“Does a correlation exist between ideological polarisation and voter turnout in European multiparty systems between 1999-2021?”

2. Theory

A commonly used theory by political scientists to explain both voting behaviour and electoral competition is *An Economic Theory of Voting* by Downs (1957). He draws parallels between the electoral competition of parties for votes and the market competition of companies for market share. Parties are vote-maximising because this increases their power on public policy whereas companies strive for a large market share because it is profit-maximising. Downs proposes that parties try to offer policy packages that appeal to as many voters as possible. Furthermore, there is a spatial component to this competition over votes, because voters are said to vote on the party that is closest to their preferences. This is analogous to a street with two bakeries where, *ceteris paribus*, inhabitants will go to the bakery that is the closest to their home in terms of distance, as illustrated in an example by Hotelling (1929). The bakeries have incentives to move closer to the middle of the street in order to garner more customers, up to the point where it would be economically feasible for a new bakery to open up at one of the extremities and potentially “steal” customers (Caramani 2020, pp.245-246).

Downs transfers this example from the field of economics to the electoral competition within the ideological realm, whilst maintaining the three core pillars of the argument: The one-dimensional space, the principle on which individuals can reduce costs by choosing the closest option and the competitors’ search for the optimal position. Downs proposes four types of voter distributions, of which three will be discussed and transferred from the one-dimensional scale to a two-dimensional space: (A.) Normal distribution, which causes centripetal competition (B.) Bimodal distribution, which causes centrifugal competition and (C.) Polymodal distribution which can accommodate both types of competition concurrently (Caramani 2020, pp.246-247).

The normal distribution is a bell-shaped curve which proposes that most voters position themselves in the ideological middle. Consequently, this results in centripetal competition, meaning parties try to move their ideological position closer to the middle in order to garner more votes just as in the bakery-analogy above. Bimodal distribution results in a sinus-shaped curve with two high points on both sides of the ideological middle ground and indicates that the majority of voters are either ideologically “left” or “right”, with only a few in the ideological middle. This type of distribution causes centrifugal competition, where the goal for both parties is to move towards one of the high points, which represents their voter base.

Lastly, the polymodal distribution resembles the bimodal distribution in its trigonometric shape but accommodates both types of party competition which makes it more likely to exist in multiparty systems. In summary, the main idea is that the distribution of voters along the ideological spectrum determines the direction of party competition (Caramani 2020, pp.246-248).

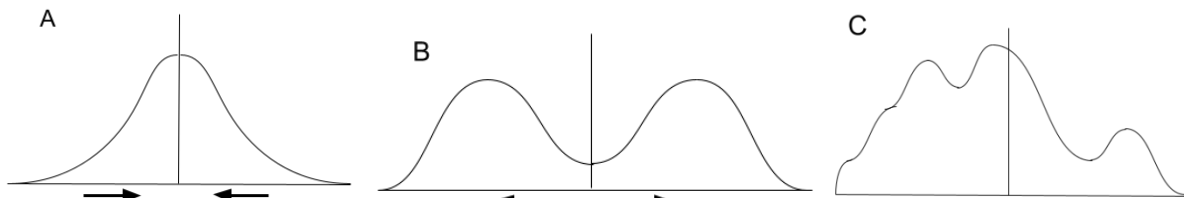


Figure.2 A. Normal distribution, B. Bimodal distribution, C. Polymodal distribution

Because my research looks at the two-dimensional plane in addition to the one-dimensional one, these distributions will be transferred/transposed to the two-dimensional plane, in which case they should look like the figures below:

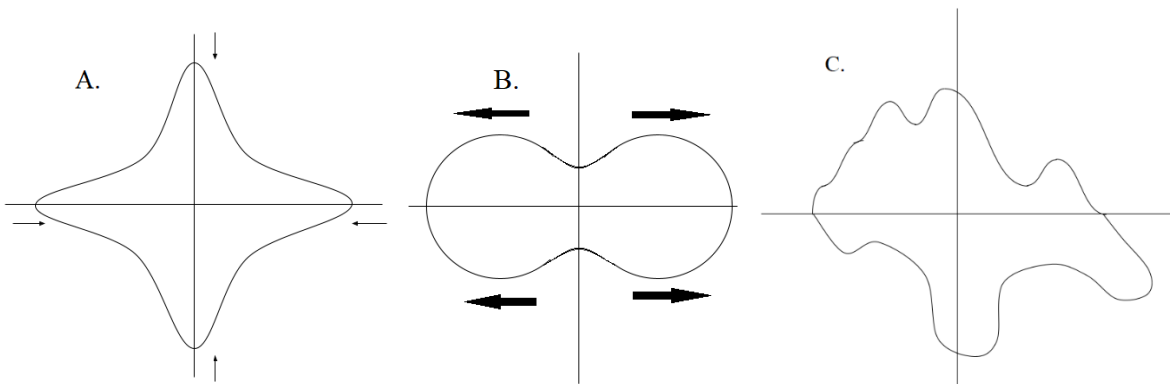


Figure. 3 Distributions in the two-dimensional plane. A. Normal distribution, B. Bimodal distribution, C. Polymodal distribution

The theory is applied on the research question through the supposition that European multiparty systems in general have a polymodal distribution of voters, similar to that shown in Graphs C. in Figure.2 and Figure.3. Caramani (2020) notes that:

“In terms of spatial analysis, the emergence of populist challengers can be seen as a direct consequence of the convergence (often also as great coalitions) between the established parties on issues like immigration and supranational integration, which left uncovered vast sectors of the electorate.” - (Caramani 2020, pp.250)

As described in the quote above, the convergence of parties can lead to new parties being created in the “outskirts” of the ideological spectrum. In turn, these new parties' public policy suggestions are much closer to the preferences of voters on the outer ends of the spectrum, which *ceteris paribus* should move some voters from existing parties as well as mobilise previous non-voters.

In addition to this theory, research findings suggest that ideological polarisation through more distinctive policy alternatives should increase the stakes of the election, giving people more incentives to go and vote (Abramowitz & Saunders 2008, pp.12). Additionally, because policy alternatives are more distinct, the cost of participation is lowered for the population as the time spent on researching party differences is decreased (Bumgardner 2016, pp.6). Abramowitz & Saunders (2008) claim that the increased polarisation in the U.S. caused an increase in voter engagement, both in terms of turnout and active participation in the campaign process. They stipulate that the ideological polarisation is a consequence of a stronger and more stable partisanship over time within the American electorate, a phenomenon which is described both in their paper from 1998 (Abramowitz & Saunders 1998) and more recently by Smidt (2017). Finally, Dalton (2008) supposes that: “The ideological spread of parties should affect the voters’ proximity to a preferred party, and thus the likelihood to vote”.

As I analyse multiparty systems, I will also shortly discuss their common properties and traits. To be classified as a true multiparty system, none of the parties has a majority by themselves, which necessitates the construction of coalitions. Common advantages seen in multiparty systems are their capability of giving representation to all groups in pluralistic societies, whilst they sometimes are critiqued for being less stable than their two-party counterparts. There are two types of multiparty systems: moderate and polarised. Moderate multiparty systems often have a centripetal competition in which the two main parties tend to converge toward the ideological middle of the electorate and choose smaller parties as their junior coalition partners. In polarised multiparty systems, competition is more often centrifugal because of large ideological distance between parties, radicalism and not all coalition alternatives being valid (Caramani 2020, pp.239-241). It is likely that European multiparty systems have become increasingly like the second type, as more and more countries have extremist parties in parliament which are categorically neglected by other parties as viable coalition partners. With that being said, centripetal competition between the two biggest parties is still a signum for many European countries.

Hypothesis 1: In accordance with research and media narratives on the subject, European multiparty systems have become increasingly ideologically polarised during the time-period 1999-2021.

Hypothesis 2: Voter turnout should correlate with ideological polarisation, because of lower cost of participation, policy distinctiveness and political opportunity structures in a polymodally distributed electorate.

3. Method

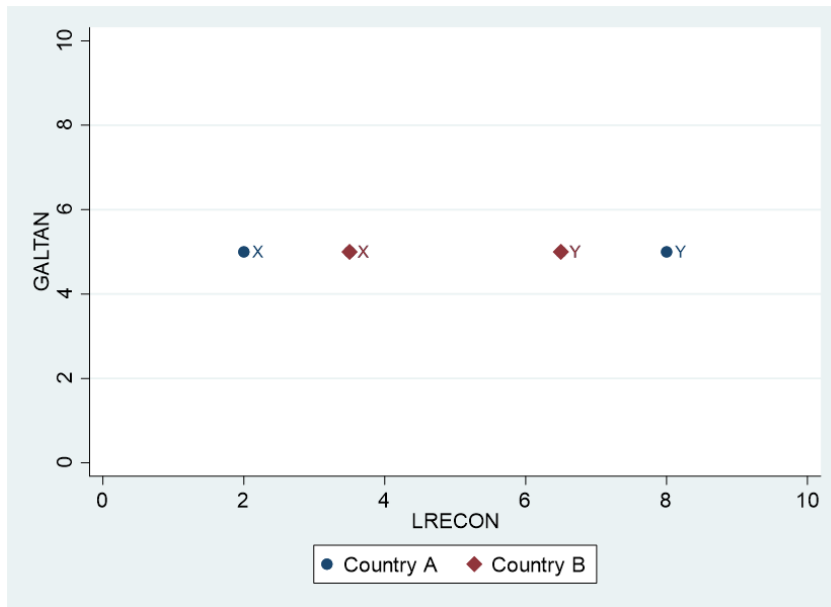
3.1. Definitions, conceptualisations and operationalisations

The word “polarisation” can be connected both to the concept of chemical polarity, magnetic poles or that of the geographical pole. What unites all concepts is that their constituent parts are the inverse of each other: The distribution of negatively and positively loaded charges in a molecule, the two magnetic poles which either attract or repel other materials and the geographical poles which are opposite one another. Because of this etymology, “polarisation” must imply positions that are different to one another.

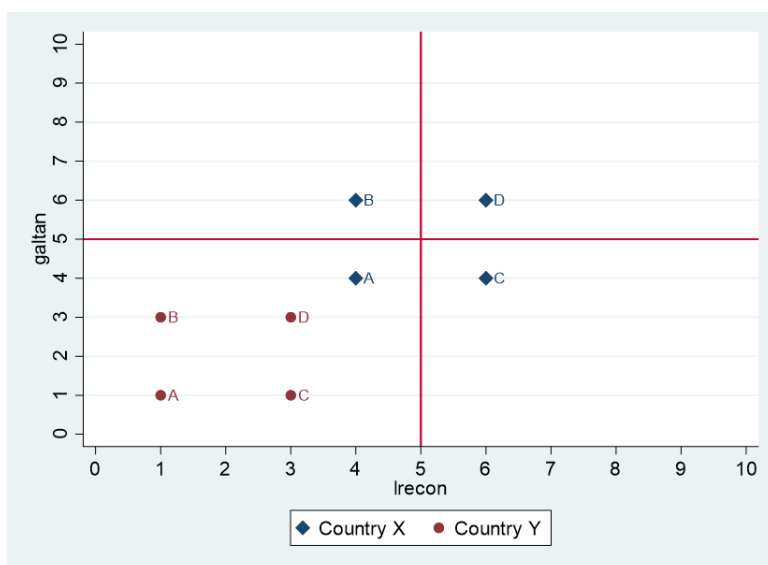
As discussed earlier, this paper focuses on the difference between parties’ ideological positions and the distance between these. Thus, ideological polarisation is seen as a system-level variable that is a quality of a party system, rather than an aggregate of individuals feelings towards parties obtained through surveys, which is a commonly utilised measure for affective polarisation. As with all surveys, the hope is that results will be generalisable to the population as a whole, and not only apply to studied sample. However, the measure of affective polarisation always remains a quality innate to the individuals on which the research was conducted, in contrast to the ideological polarisation of the system. (The polarisation of the party system certainly depends on the ideological positions of the parties within it, but is a quality of the party system. One point of critique could be that I am somewhat hypocritical here in the dismissal of affective polarisation)

My operationalisation of ideological polarisation is similar to that of Harteveld (2021) who defines it as the “ideological distance between parties” (Harteveld 2021, pp.5). Hartevelds operationalisation is dyadic and a variable that pertains to pairs of parties, whereas mine measures the average distance between parties in the party system as a whole. It is seen as a system-level variable that is unique to a country and point in time.

Other prominent indices are the Party Fractionalisation Index (Rae 1971) and its inverse, the effective number of parties (Laakso & Taagepera 1979) (Dalton 2008, pp.903) The Fractionalisation Index is of particular interest since it is used as a measure of how fragmented the party system is, which could indicate polarisation but cannot assert it. For example, if we assume Country A and B to both have parties X and Y with equal vote shares of 50% they would have the same level of fragmentation, but could still have a different distance between them ideologically:



Graph. 1. Countries with similar fragmentation, but different ideological polarisation.



Graph. 2. Same degree of polarisation, different quadrants

One of the potential shortcomings of my operationalisation is that it does not control for where in the ideological landscape the parties are positioned. One could argue that

ideological polarisation is even stronger diagonally than horizontally or vertically, and that parties within the same quadrant are less polarised than parties in different quadrants, even though the distance is the same. In the example below, the ideological polarisation within the party system (parties A, B, C and D) is equal for both countries, but country X has a party in each ideological quadrant. This potential weakness is somewhat offset by the fact that most observations in my sample fill at least 3 of the ideological quadrants. This is coherent with previous research which identifies the scarcity of top-left parties in Europe (see App.C1-C28), despite there being a potential electoral demand for it (Lefkofridi et. al. 2014).

3.2. Data

For voter turnout, I use the IDEA (Institute for Democracy and Electoral Assistance) voter turnout database for parliamentary elections in European countries between the years of 1999-2021 (IDEA 2022). For certain countries such as e.g. France one could argue that the presidential elections are more impactful than the parliamentary, but because these elections are driven even more by personality than their parliamentary counterpart they are not suitable objects of study, as the study’s primary interest lies in the ideological differences between parties.

I use the CHES dataset trend-file for 1999-2019 to quantify the ideological positions of parties in 28 European countries. CHES is an expert survey that asks political scientists from different backgrounds to determine parties’ political positions based on their knowledge and research. Thus, the party positions from the CHES dataset are the mean values for the variables assigned by experts. Just like with other expert survey datasets, such as the V-Party dataset (V-Dem 2022), the party positions are relatively stable over time. This is a double-edged sword, as it could have a positive effect on the internal validity of the research but simultaneously might lead to too little variation in the independent variable. The data can be categorised as unbalanced panel data, as it contains observations over time for multiple entities but with gaps between years. This approach further differentiates the research from Dalton (2008), who uses citizen surveys to determine party positions, rather than expert surveys.

Another dataset that aims to quantify the position of political parties is the Manifesto Project Database (WZB 2022) by the WZB (Wissenschaftszentrum Berlin für Sozialforschung), which more specifically looks at party manifestos. However, including this in the research would have increased the scope of the research substantially. In addition, at the time when calculations were conducted, the dataset was not available online.

Data on control variables such as GDP per capita and Gini-index was taken from the World Development Indicators database (WDI 2022), which is supplied by the WBG (World Bank Group). The data for GDP per capita is PPP-adjusted to the value of a dollar year 2017. The dummy-variable for Western and Eastern Europe is included in the CHES dataset to begin with and is dichotomous (0=Central/Eastern Europe, 1=EU-15 Country) (CHES 2022b).

Parties without a seat in the national parliament were omitted from the research, based on the ground that they do not contribute enough to neither the real nor perceived ideological landscape of the country. Of course, there can always be exceptions to this rule, but in general this omission should increase the internal validity of the research. Of 1197 unique observations of parties between the years 1999-2019, 70 were dropped because of this size-constraint.

A further 8 observations were dropped because they were unable to be assigned to a specific election. Because the study is interested in the impact of the ideological distance on voter turnout, the independent variable (*ideological distance*) must precede the dependent variable (*voter turnout*). Because the data is unbalanced panel data, the hope is that a change in the independent variable correlates with a change in the dependent variable:

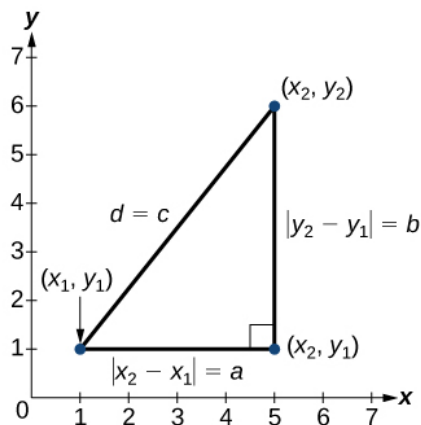
$$\Delta \text{Ideological Distance}_{t, t+T} \rightarrow \Delta \text{Voter Turnout}_{t+1, t+1+T} \quad (\text{T: Time between elections})$$

(t: Year)

3.3. Method

Because I operationalise the polarisation through the ideological distance between parties, I need a formula that can quantify distance between two points in a coordinate system. The Pythagorean theorem allows for this, as the distance d between two points in a coordinate

system is the same as the length of the hypotenuse c of a right-angled triangle with legs a and b . Thus, the distance between points 1 and 2 is:



$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Figure. 3. Pythagorean theorem

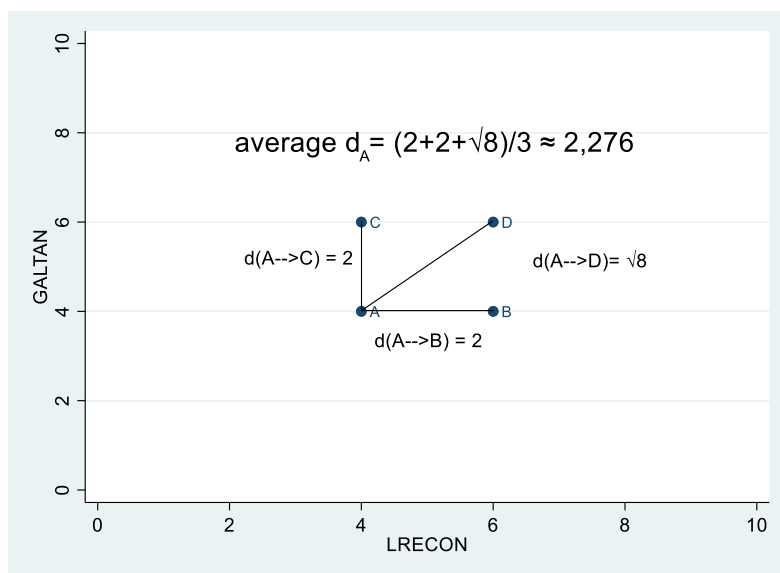
In my case, the x -axis will represent the left-right economic scale (LRECON) and the y -axis the socio-cultural scale (GALTAN). LRECON ranges from 0 to 10, where higher values indicate to what extent the party ideologically prefers a free economic market policy over an interventionist one. GALTAN ranges from 0 to 10, where values above 5 indicate that a party is more TAN (Traditional, Authoritarian, Nationalist) than GAL (Green, Alternative, Libertarian) and vice-versa.

The method of combining the two primary dimensions of ideological difference between parties is new in comparison to previous research that looks at the dimensions separately or uses an “old” Left/Right-scale. During latter years it has been more common practice to include the socio-cultural dimension (GAL-TAN) in research, as it is said to provide valuable insight into ideological differences in a post-materialistic and globalised society (Caramani 2020, pp.249). However, this dimension has been criticised as being somewhat similar to the old socialism vs. capitalism debate, as the divide between the two ideological camps seems to be based on class - The losers of globalisation position themselves TAN and the beneficiaries of globalisation GAL (ibid). Because I analyse all three types of ideological distance, the hope is that my research will provide further conclusions on whether the two-dimension political scale is a suitable instrument/framework for analysis within the study of political science.

The main argument for this new measuring method of ideological polarisation is that it corresponds very well to previously established empirical research which studies how the

distinctness of policy alternatives influences voter turnout (Abramowitz & Saunders 2008, pp.12)(Bumgardner 2016, pp.6). Assuming that the datasets used are somewhat valid, the average distance between parties in a system is a measure of exactly that. Furthermore, it seems as if the results obtained would make for a fruitful analysis when applying the theoretical framework of Downs (1957).

Ideological distance is a quality innate to pairs of parties, whilst ideological polarisation is the average ideological distance between all parties in a system. To calculate the average distance between parties in a party system one first needs to calculate the distance between all parties, followed by the average distance from each party to all other parties. The calculation method is illustrated in Graph.1 below, with the distance d_A being the average distance from Party. A to all other parties. In this case a symmetrical group of parties is used, which results in the average distance from one party to all other parties d_A being equal to the average distance between all parties d_{tot} :



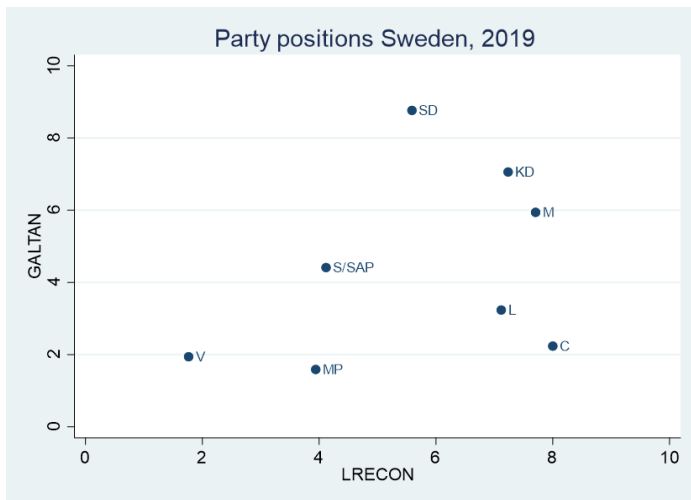
Graph. 3.. Illustration of the calculating method

$$\text{Ideological Polarisation} = IP_{\text{Country, Year}} = \frac{1}{p} (d_1 + d_2 + \dots + d_n)$$

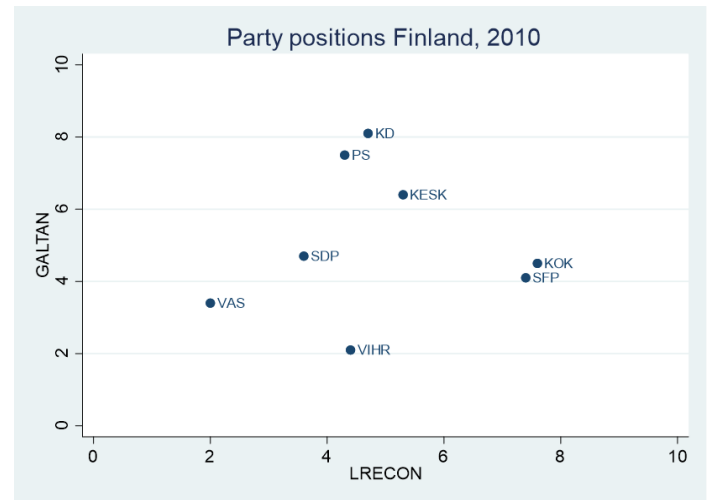
p = Number of parties a specific country and year

d_i = Average ideological distance from party i to every other party

In order to provide an empiric example, I will use the case of Sweden 2019 and Finland 2010, whose party positions looked like this:



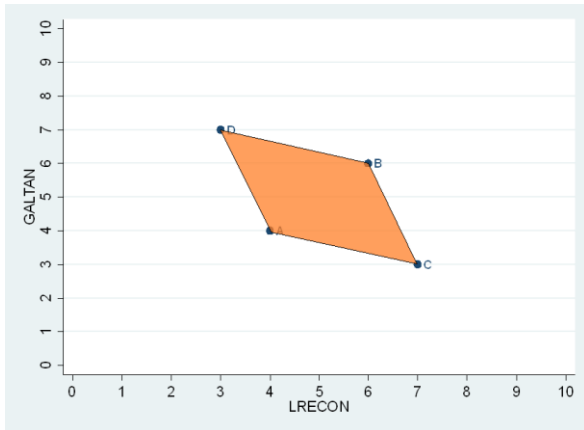
Graph.4. Party positions in Sweden, 2019.



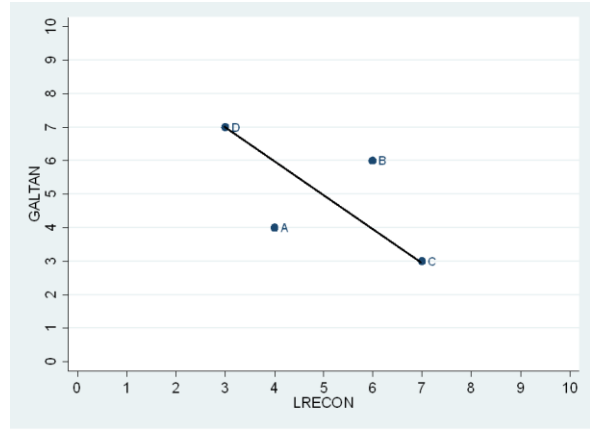
Graph. 5. Party positions in Finland, 2010.

Both countries possessed eight parties that were deemed relevant enough to be included in the CHES Dataset, but in Finland parties look to be both more centred around the middle of the plot and closer to each other ideologically. The average distance between parties seems to be lower in Finland 2010 than in Sweden 2019. Results from the study confirm this, as the average aggregate ideological distance was $\approx 3,2$ for Finland 2010 and $\approx 3,95$ for Sweden 2019. If one were to believe the results, Sweden 2019 was more ideologically polarised than Finland 2010, which seems like a plausible result considering events such as the 2012 refugee crisis and its impact on politics in European countries. Graphs which show changes over time by country are provided in Appendix C1-C28.

A different measuring method that is coherent with this spatial theory of voting is to look at how much of the two-dimensional ideological space is occupied by the area between parties in a system (gph.6). The disadvantage of this method is that it does not account for ideological differences within this area, so it essentially only captures policy distinctiveness between the most “radical” parties. Another possible measuring method consists of measuring the longest distance between a pair of parties in each system (gph.7). This measuring method could be more applicable to de-facto two-party systems such as the U.K. but neglects the role of middle parties and their capabilities to be mediators of conflict. Even more critically, this approach is not coherent with a spatial theory of voting. Because of the above stated reasons, these approaches were rejected as means of measuring ideological polarisation.

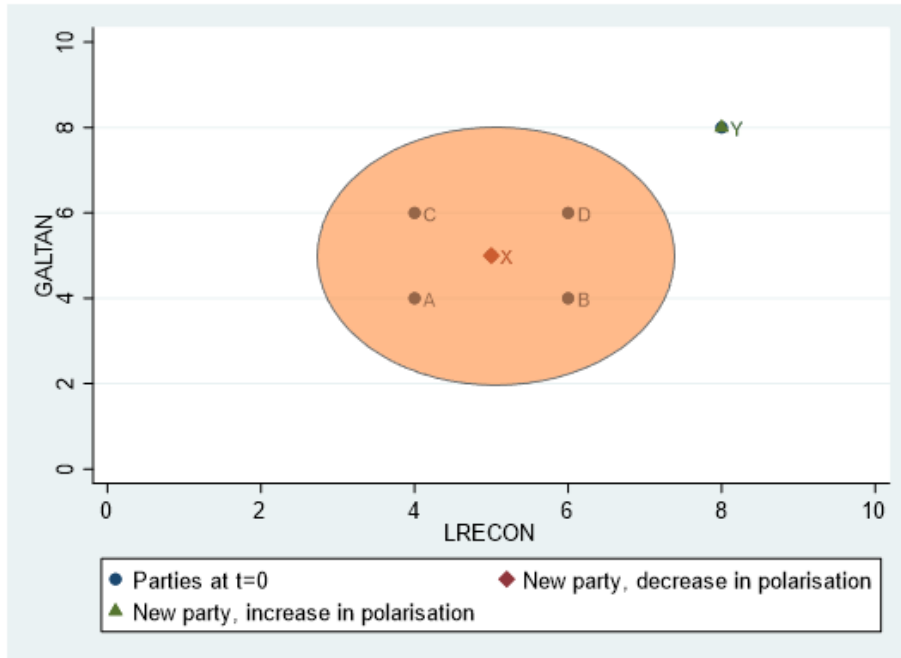


Graph.6. Area between parties A-D.



Graph. 7. Maximum distance between 2 parties.

This measuring method also means that the arrival of new parties to party systems will affect the average ideological distance. This in turn helps us deduce the general direction of party competition in these systems. In the graph below, the orange circle approximately indicates the area in which the formation of new parties would decrease the average ideological distance, while parties that pop up in the white area would increase this distance. If new parties would pop up Party.X is an example of centripetal competition, whilst party.Y is one of centrifugal competition.



Graph.8. The direction of competition and its effects on ideological polarisation

The vote share of parties was not weighed into the calculations of ideological distance, as sometimes smaller parties can have a more substantial impact on the polarisation of the system as a whole. Furthermore, the number of parties in a given system was not weighed

into the calculations of ideological polarisation, but instead residuals were calculated in order to account for the effect of more parties on ideological polarisation. This is because our mathematical intuition tells us that more parties naturally lead to a lower average distance between parties, as they can only exist within a finite space. The results of these residual-calculations will be presented in a separate section of results (4.2).

Because the study will conduct multiple regression analysis, it is wise to reflect upon what level of statistical significance is deemed as “relevant”. Within the field of political science, a p-value of 0,05 is commonly used as a first threshold for indicating a statistically significant correlation. I will use a p-value of 0,05 as the cut-off point for significant findings from results but might still discuss results that come close to this threshold. as my number of observations is relatively small for a statistical analysis (N=135).

Pooled OLS regressions are common in the field of political science and produce satisfactory results in most cases, however they might not be the best regression models from a theoretical standpoint. Generally speaking, the random effects model is to be preferred over the fixed effects model as it both retains characteristics that are innate and constant to individuals and does not lose degrees of freedom. Random effects require a couple of preconditions to be fulfilled. One of these is that the observations in our sample need to be drawn randomly from a given population (Dougherty 2016, pp.539-542). As I observe European multiparty systems and even adjust the number of observations during the research, this precondition is not satisfied, which should rule out random effects models. Instead, a fixed effects model is theoretically more suitable for the studied sample (ibid).

The research employs three variables as controls: (1.) GDP per capita, (2.) the Gini-index and (3.) a dummy-variable for Eastern/Western Europe. Higher GDP per capita might lead to an increasingly post-materialistic society, in which questions and disagreements about socio-cultural aspects (GAL/TAN) should become more salient and important. Note that this does not necessarily lead to an increase in ideological distance along the GAL/TAN-dimension. Rather than being a confounding variable for ideological distance, GDP per capita might affect turnout because people in more post-materialistic societies do not need to spend as much time on working and fulfilling basic needs, which gives them more time to research and contemplate ideological questions. This argument resembles that made by Rosenstone & Wolfinger (1980) who argue that household income does influence voter turnout up to a

certain threshold, where the person reaches “*a modestly comfortable standard of living*”, after which its effects are negligible (Wolfinger & Rosenstone 1980, pp.1-27). The Gini-index has previously been shown to impact voter turnout (Caramani 2020, pp.326). An increase in income inequality should cause increased polarisation along the economic Left/Right-dimension, which in turn would increase the aggregate average distance. Thus, it acts as a confounding variable whose impact should be higher in the economic dimension. The dummy variable for Western and Eastern Europe is included to account for differences in political culture between countries. It has been shown that trust in governmental institutions is lower in the post-soviet countries of eastern Europe than in western Europe (Lovell 2001)(Pehlivanova 2009), which could influence voter turnout.

4. Results

4.1. Simple regressions

[Interesting that there is a positive correlation between number of parties and ideological distance, this seems to confirm that parties need to fill ideological niches in order to exist] One of the primary questions of this essay was to answer whether European multiparty systems have become increasingly polarised over time. Regressions show that this may be true for some ideological dimensions, but not for others:

Table.1. Ideological distances over time

Polarisation:	Aggregate	Left/Right	GAL/TAN
Election year	0.0132 (0.148)	-0.00714 (0.346)	0.0213* (0.018)
_cons	-22.82 (0.212)	16.59 (0.276)	-40.22* (0.026)
<i>N</i>	117	117	117
<i>R</i> ²	0.018	0.008	0.048
adj. <i>R</i> ²	0.010	-0.001	0.040

p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table.1. Shows that ideological polarisation has increased over time, but taken place mainly within the GAL/TAN-dimension.

We can see that the ideological polarisation mainly takes place within the GALTAN-dimension, with the inverse being true of the economic Left/Right-dimension where polarisation decreased over time. Only the change in GALTAN is statistically significant, with aggregate distance obtaining a *p*-value of 0,148. Overall, this leads to an increase in aggregate distance over time, but not a statistically significant one. The low *R*²-values also indicate that the time component is not a major explanatory variable for explaining change in ideological distance. Thus, we cannot conclude that ideological polarisation has increased in Europe between 1999-2019 on a aggregate level.

Table.2. Main regression, prior to emission of some countries

Type of Polarisation:	Voter Turnout	Voter Turnout	Voter Turnout
Aggregate	4.174* (0.012)		
Left/Right		3.642 (0.061)	
GAL/TAN			2.661 (0.131)
_cons	52.17*** (0.000)	59.47*** (0.000)	60.71*** (0.000)

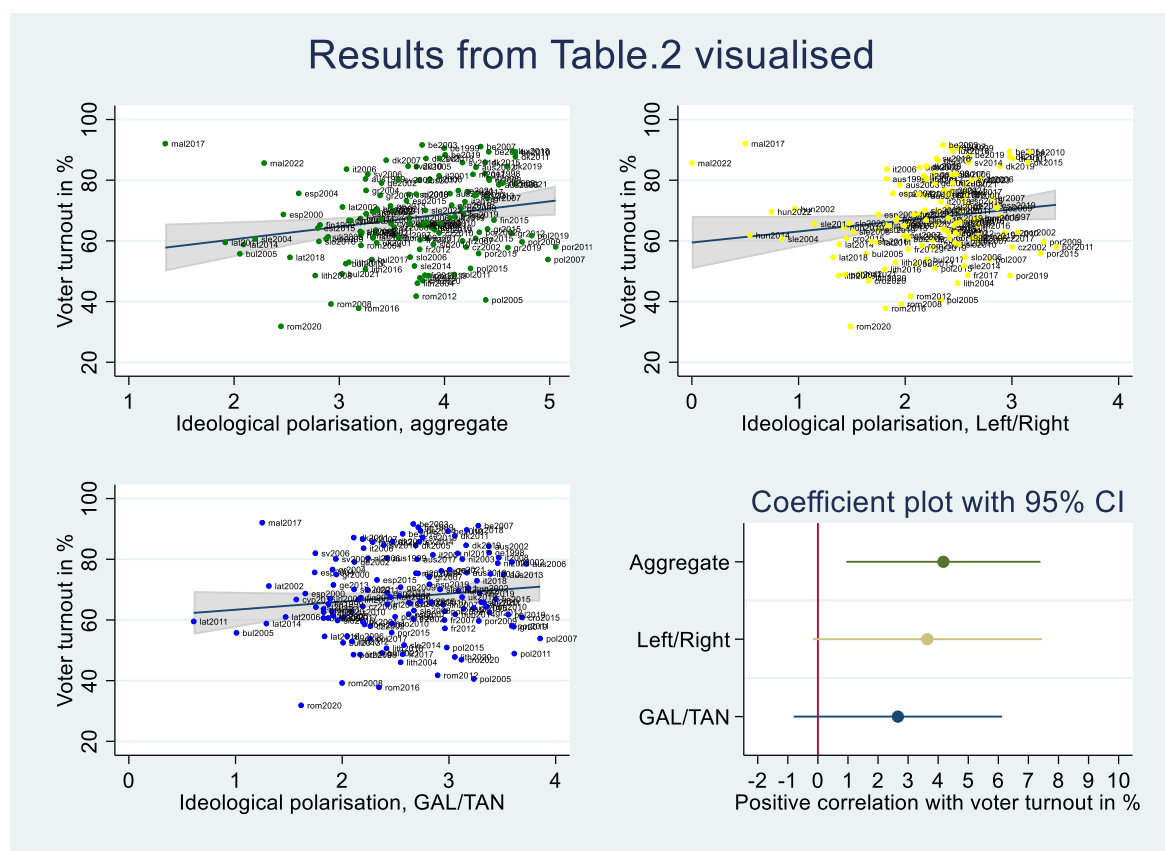
N	135	135	135
R^2	0.047	0.026	0.017
adj. R^2	0.040	0.019	0.010

p -values in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table. 2. Correlation between ideological polarisation on the aggregate level and voter turnout.

As we can see in the table above, only one of the dependent variables is statistically significant if we demand a p -value $< 0,05$. We can also see that the average distance within the economic dimension is more statistically significant than the socio-cultural. Furthermore, the aggregate distance has a higher R-squared than the other variables, meaning it can account for more of the non-systematic variation in the model. This even holds true for the adjusted R-squared which is higher than the sum of adjusted R-squared for the disaggregated distances. This means that changes in aggregate distance are better at explaining variation in voter turnout than changes in Left/Right and GAL/TAN together. According to the results above, voter turnout increases by around 4,2 % per unit of average ideological distance between the parties. A graph to summarize the results follows below:



Graph. 9. Positive coefficients for all variables, but with pretty significant std.errors. Only the effect of aggregate polarisation is continually positive within the 95% confidence interval. If we look at the graphs, we immediately notice two statistical outliers: Malta and Romania. Malta enjoys a relatively high voter turnout even though the ideological polarisation is low, whereas the turnout in Romania consistently remains far below the average turnout, almost

regardless of the degree of polarisation. Interestingly enough, the observed correlation between voter turnout and ideological distance applies to Romania but is inverse in the case of Malta.

To increase the validity of the findings even more countries and observations are omitted from the regression. Although technically a multiparty system, the UK is de-facto a two-party system because of its majoritarian model which might skew results. The likes of Malta, Luxembourg, Croatia and Cyprus are omitted based on their size, de facto dyadic party systems, too few observations over time or a multitude of these factors. Lastly, Belgium has a system of compulsory voting which may provide inaccurate values for voter turnout. Regression was performed yet again on the variables that were kept, yielding the following results:

Table.3. Main regression, after omission of some countries

Type of Polarisation:	Voter Turnout	Voter Turnout	Voter Turnout
Aggregate	5.057** (0.004)		
Left/Right		5.011* (0.017)	
GAL/TAN			3.029 (0.086)
_cons	47.61*** (0.000)	55.06*** (0.000)	58.50*** (0.000)
<i>N</i>	117	117	117
<i>R</i> ²	0.072	0.048	0.025
adj. <i>R</i> ²	0.063	0.040	0.017

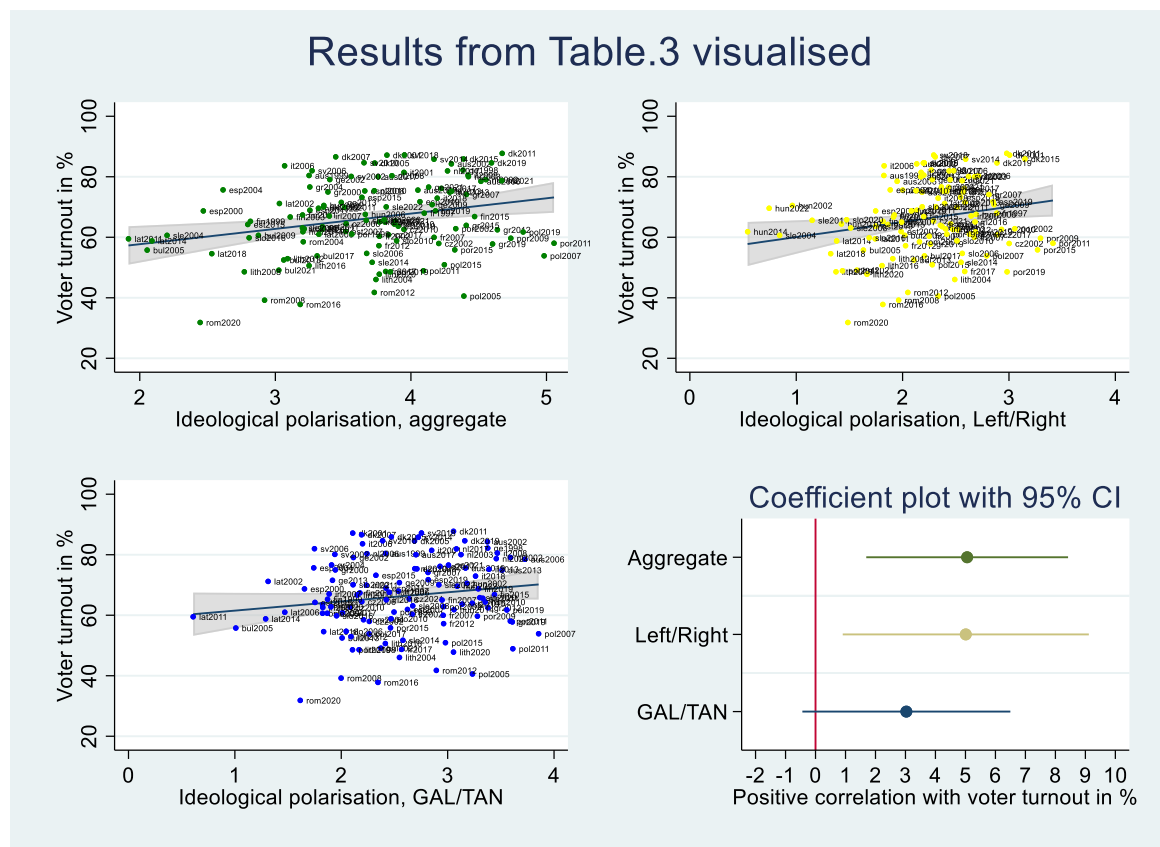
p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table.2. Correlation now also observable within the Left/Right-dimension, while correlation on the aggregate level became stronger.

As we can see above, the values of the coefficients, *R*² and adj. *R*² all increase while the *p*-value drops for all variables. Aggregated distance is still the most statistically significant measure, being the only measuring method with a *p*-value < 0.01, with the distance in terms of economic left-right positioning still outperforming GALTAN-distance in all relevant statistical aspects. This indicates that ideological polarisation does affect voter turnout, everything else equal. It also shows that the method used is more applicable to real multiparty

systems that are de facto two-party systems. Again, a visual representation of the results follows below:



Graph. 9. The value of all coefficients increases compared to (gph.8), with both aggregate and Left/Right-polarisation having continually positive values within the 95% confidence interval. Distribution of observations also indicates that ideological polarisation is more pronounced within the GAL/TAN-dimension.

4.2. Party competition

Table.4. Correlation between change in No. of parties and Ideological Polarisation

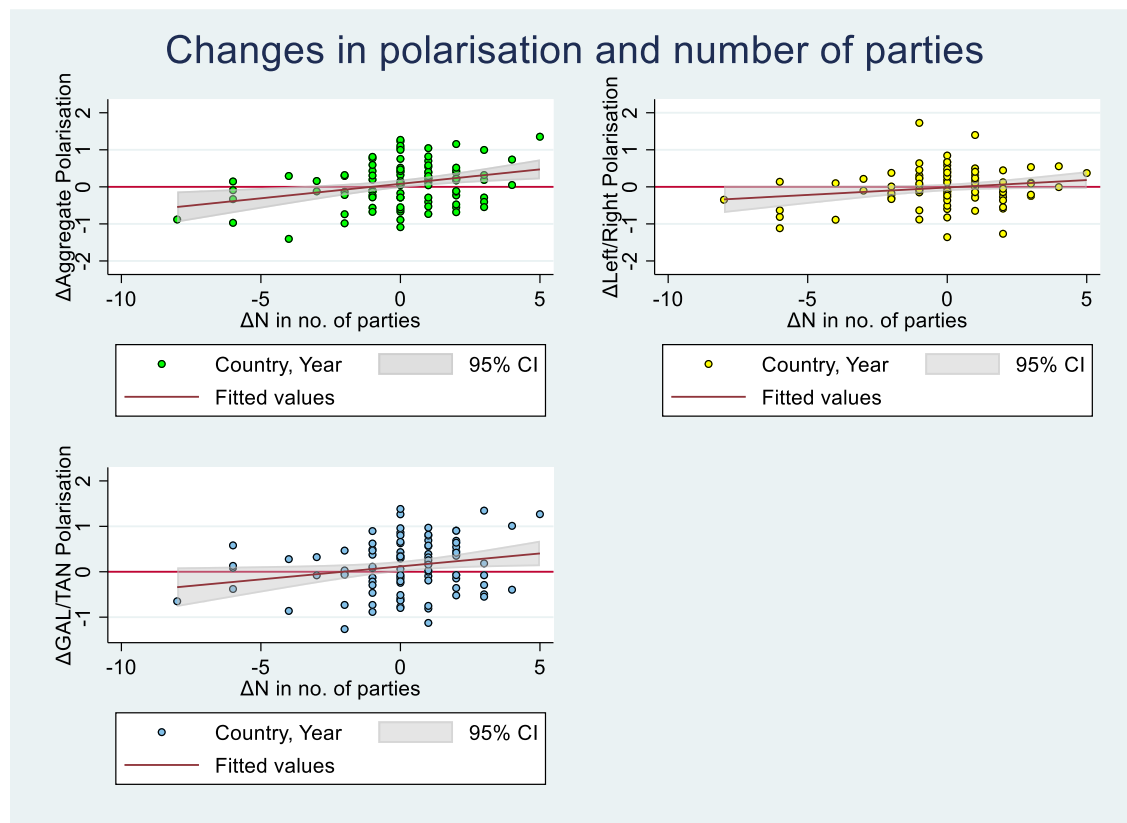
Polarisation:	Δ Aggregate	Δ Left/Right	Δ GAL/TAN
Δ No. of parties	0.0781** (0.002)	0.0401 (0.072)	0.0571* (0.031)
_cons	0.0817 (0.152)	-0.0167 (0.737)	0.118* (0.049)
<i>N</i>	95	95	95
<i>R</i> ²	0.094	0.034	0.049
adj. <i>R</i> ²	0.085	0.024	0.039

p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table. 6. A change in number of parties influences the levels of ideological polarisation on both the aggregate and GAL/TAN level.

Table.4 shows that an increase or decrease in number of parties coincides with identical changes in ideological distance. This is especially true for the aggregate distance and GAL/TAN-distance, with the Left/Right distance obtaining p-values close to the 0,05 threshold. Again, low values of R^2 force one to not take huge stock in these results and to tread lightly when drawing potential conclusions. The lack of statistical significance for the constant is not as much of an issue here, as we are dealing with both negative and positive values of the independent variable.



Graph. 10. Correlation between changes in no. of parties and ideological polarisation. All values positive.

To explore the question of party competition further I looked at the change in ideological distance for countries where the number of parties remained unchanged between survey years, which consists of observations where ΔN in no. of parties=0:

Table. 5. direction of party competition for countries with ΔN of parties=0

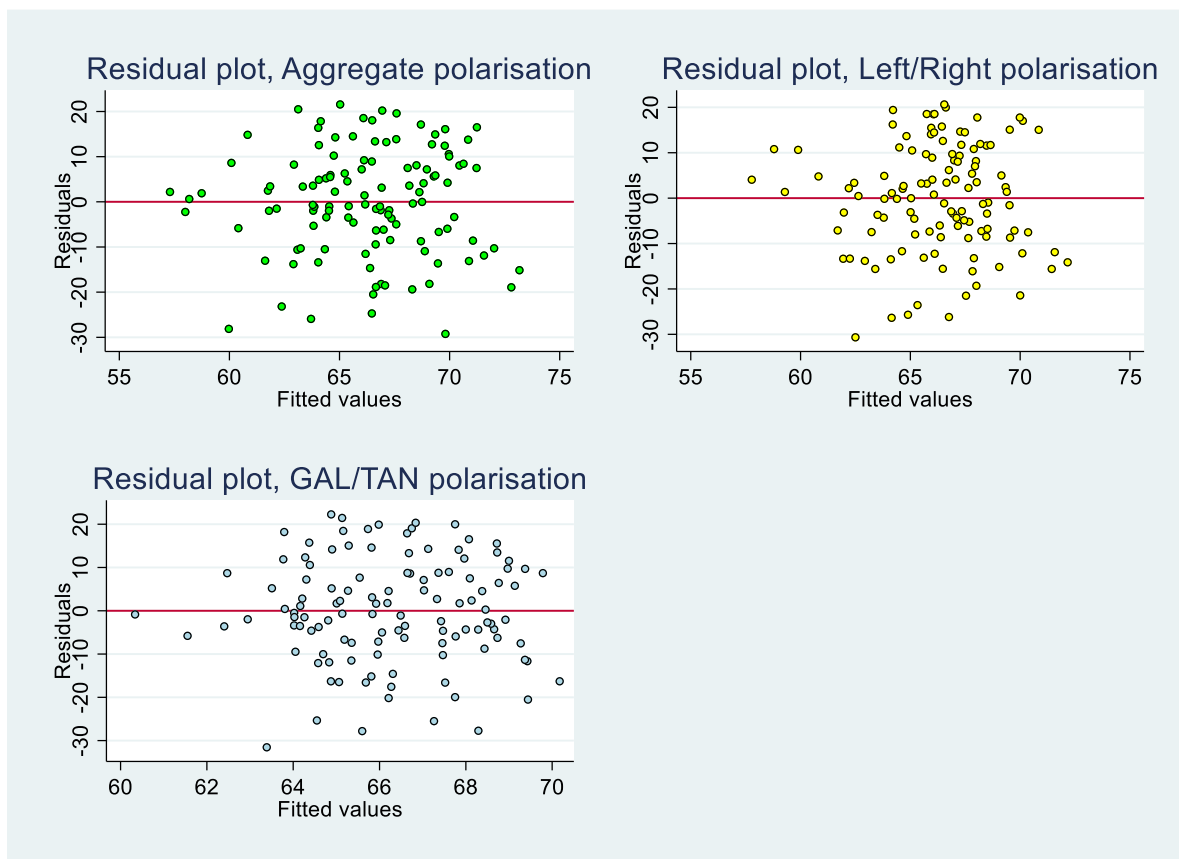
Variable:	Obs.	Mean	Std. Dev.	Min	Max
Aggregate	25	.167	.667	-1.088	1.269
GAL/TAN	25	.159	.63	-.798	1.384
Left/Right	25	.028	.515	-1.357	.845

Table.5. All mean values positive, meaning that ideological polarisation increased over time when number of parties was constant. This effect is more strongly observed for Aggregate and Left/Right polarisation. All mean values being positive seemingly indicate centrifugal competition during the studied time period, in line with findings from Table.1. This can be an effect of two occurrences: (1.)

The exact same parties are observed, but the ideological distance between them increases over time or (2.) The number of parties stays the same, but some previous parties disappear and are replaced by “new” ones. Regardless of cause, both results can be interpreted as signs of centrifugal competition (more on this in section. 5)

4.3. Tests and control variables

Sometimes linear regressions are not suitable for studying a relationship between two variables and one should resort to other regression methods (e.g. quadratic). If the residuals of the independent variable: A. Do not follow a random distribution pattern, B. Have a cone-shaped distribution, also referred to as “heteroskedasticity” or C. contain extreme statistical outliers other regression methods are to be preferred. The residual-plots for the three types of ideological polarisation look like this:



Graph.11. Residual plots, used to check for the suitability of linear regression method. GAL/TAN and Aggregate plots could indicate presence of heteroskedasticity.

The residuals of the Left/Right dimension seem randomly distributed whereas the other ones could indicate the presence of heteroskedasticity. As a security measure Breusch/Pagan-Cook/Weisberg tests were conducted for all three variables, which confirmed that no

heteroskedasticity was present within the residual sample (Results shown in App.C1-C3).

This strengthens the case for the usage of a linear regression method.

Because the measuring method used calculates averages, the number of parties within a given system should be a major contributing factor to what values are obtained for ideological distance. However, its impact is uncertain: It could either increase the average ideological distance if parties within a system are spread out or decrease if they are reasonably close together. It only makes sense to account for its potential impact on the result by performing residual regressions with the ideological distances as dependent variables and no. of parties as the independent variable.

Table.6. Correlation between ideological polarisation and No. of parties

Polarisation:	Aggregate	Left/Right	GAL/TAN
No. of parties	0.0192 (0.381)	0.00305 (0.867)	0.0279 (0.198)
_cons	3.527*** (0.000)	2.211*** (0.000)	2.328*** (0.000)
<i>N</i>	117	117	117
<i>R</i> ²	0.007	0.000	0.014
adj. <i>R</i> ²	-0.002	-0.008	0.006

p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table. 6. Correlation between ideological distances and No. of Parties yielded no statistically significant results, with GAL/TAN-dimension being the closest one.

The impact of the number of parties on ideological distance is substantive from a coefficient standpoint, but negligible because of its lacking statistical significance and low *R*², with the lowest *p*-value being 0,198, a value four times as high as our chosen *p*-value for the research.

Table.7. Correlation between number of parties and voter turnout

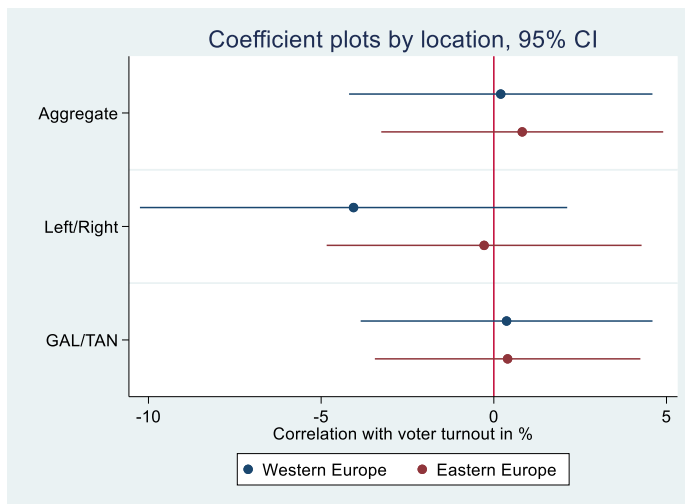
	Voter Turnout
No. of parties	0.592 (0.151)
_cons	61.24*** (0.000)
<i>N</i>	117
<i>R</i> ²	0.018
adj. <i>R</i> ²	0.009

p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table. 7. No significant correlation between No. of parties and voter turnout. Findings indicate that method is relatively stable regardless of number of parties, which will not be included in the multivariate model.

From this regression, we can conclude that the number of parties does not correlate with voter turnout at a significant level. This bodes well for the rest of our research, as the thesis being driven is that the ideological distance between parties is more important than the sheer number of parties. Normally, if one wants to account for the effect the number of parties has on turnout one could plot the residuals into a pooled OLS model, thus controlling for their effect even further. However, this would not increase the validity of the research, as the number of parties is a factor in determining ideological distances and would be accounted for twice.



Graph. 13. Coefficient plots by geographic location.

confirmed in Table.6 below, which shows that the difference in voter turnout between Western and Eastern European countries is 15% on average:

When we divide up the observations into two categories based on their geographical location, the values of the coefficient plot change quite drastically. The coefficient is only slightly positive and the 95% confidence intervals include both negative and positive numbers. This indicates that the effect of ideological polarisation within the same group of countries is unreliable, which is

Table. 8. Voter turnout, ideological polarisation by location

Variable:	Voter turnout	Voter turnout	Voter turnout
Aggregate Polarisation	0.519 (0.729)		
Left/Right Polarisation		-1.671 (0.367)	
GAL/TAN Polarisation			0.385 (0.787)
1.West/East dummy	15.20*** (0.000)	16.26*** (0.000)	15.35*** (0.000)
_cons	55.52*** (0.000)	60.55*** (0.000)	56.36*** (0.000)
<i>N</i>	117	117	117
<i>R</i> ²	0.395	0.398	0.394
adj. <i>R</i> ²	0.384	0.388	0.384

p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table. 8. Geographic location correlates more strongly with turnout than any type of ideological polarisation. Findings above indicate that there might be other variables at play which affect turnout to a greater extent than ideological polarisation. Regressions were conducted in order to check if these variables influence voter turnout through ideological polarisation, or directly:

Table.9. Correlation between geographic location and ideological polarisation

Variable:	Aggregate Polarisation	Left/Right Polarisation	GAL/TAN Polarisation	Number of parties
West/East	0.507*** (0.000)	0.481*** (0.000)	0.289* (0.016)	0.712 (0.169)
_cons	3.396*** (0.000)	1.958*** (0.000)	2.397*** (0.000)	8.082*** (0.000)
<i>N</i>	117	117	117	117
<i>R</i> ²	0.151	0.197	0.050	0.016
adj. <i>R</i> ²	0.144	0.190	0.041	0.008

p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table. 9. Geographic location correlates with ideological polarization, but not with no. of parties.

The table indicates that countries in western Europe are more ideologically polarised than their eastern counterparts, regardless of polarisation-type. Based on coefficients, *R*² and *p*-values this is especially true for the economic Left/Right-dimension in comparison to the GAL/TAN-dimension. The conclusion to be drawn from this is that ideological polarisation

based on geographical location is better explained by other variables when it comes to the GAL/TAN-dimension ($R^2=0,05$). In comparison, a lot of the difference in Left/Right-polarisation between western and eastern Europe can be explained by their location ($R^2=0,2$). It is also shown that countries in western Europe generally have more parties in their party systems, although this correlation is spurious (p -value= $0,169$).

Table.10. Correlation between Gini-index and ideological polarisation

Type of Polarisation:	Aggregate	Left/Right	GAL/TAN	Voter turnout
Gini-index	-0.00814 (0.566)	0.00543 (0.641)	-0.00526 (0.709)	-0.741** (0.004)
_cons	3.932*** (0.000)	2.087*** (0.000)	2.691*** (0.000)	90.37*** (0.000)
<i>N</i>	88	88	88	88
R^2	0.004	0.003	0.002	0.095
adj. R^2	-0.008	-0.009	-0.010	0.084

p-values in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table. 10. Gini-index correlates more strongly with voter turnout than ideological polarization.

The Gini-index does not seem to correlate with ideological polarisation at a significant level, however it does with voter turnout, as expected by previous research. SH3, which stated that increased income equality should cause increased Left/Right polarisation can be rejected comfortably based on these findings.

Table.11. Correlation between GDP per capita and ideological polarisation

Type of Polarisation:	Aggregate	Left/Right	GAL/TAN	Voter turnout
GDP per capita	0.0000172*** (0.001)	0.0000111** (0.008)	0.0000125* (0.016)	0.000671*** (0.000)
_cons	3.059*** (0.000)	1.859*** (0.000)	2.086*** (0.000)	41.81*** (0.000)
<i>N</i>	107	107	107	107
R^2	0.101	0.065	0.054	0.453
adj. R^2	0.093	0.056	0.045	0.448

p-values in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table. 11. GDP per capita correlates with all variables above, but mostly with voter turnout.

Results indicate that GDP per capita correlates with both voter turnout and ideological polarisation but can explain more of the variation in voter turnout, as the R^2 is four times as high as that for the best performing polarisation-type. Because of this, ideological polarisation is most likely not a moderating variable through which GDP per capita influences voter turnout.

4.4. Multi-variable and fixed-effects models

Table.12. Fixed-effects model

Type of Polarisation:	Voter Turnout	Voter Turnout	Voter Turnout
Aggregate Polarisation	0.269 (0.802)		
Left/Right Polarisation		1.100 (0.401)	
GAL/TAN Polarisation			-0.0274 (0.979)
_cons	65.28*** (0.000)	63.81*** (0.000)	66.34*** (0.000)
<i>N</i>	117	117	117
<i>R</i> ²	0.001	0.008	0.000
adj. <i>R</i> ²	-0.233	-0.225	-0.234

p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table. 13. Fixed-effects model yields insignificant results for all types of ideological polarization, with Left/Right being the most statistically significant at *p*=0,4.

The fixed-effects model yields insignificant results, with the Left/Right-dimension performing the best out of all types of ideological polarisation, garnering a *p*-value of 0,58. With *p*-values being high and the adjusted *R*² negative, Table.13 should be considered a non-result. This can be attributed to the fact that although fixed-effects regressions are theoretically optimal for the study from the perspective of data being a non-random sample, the low number of in-group observations (countries in this case) and irregular gaps in the data could lead to inaccurate fixed-effects estimates.

Table.13. Multivariate model

Variable:	Model. 1 Voter Turnout	Model. 2 Voter Turnout	Model.3 Voter Turnout	Model. 4 Voter Turnout
West/East	10.37*** (0.001)	9.813** (0.002)	10.12*** (0.001)	9.303** (0.002)
GDP per cap.	0.000293* (0.025)	0.000297* (0.026)	0.000300* (0.021)	0.000307* (0.019)
Gini- Coefficient	-0.592** (0.003)	-0.565** (0.004)	-0.586** (0.003)	-0.564** (0.004)
Aggregate Polarisation	-1.695 (0.229)			
Left/Right Polarisation		-0.844 (0.636)		
GAL/TAN Polarisation			-2.061 (0.125)	
_cons	75.18*** (0.000)	70.23*** (0.000)	73.88*** (0.000)	68.22*** (0.000)
<i>N</i>	84	84	84	84
<i>R</i> ²	0.593	0.586	0.597	0.585
adj. <i>R</i> ²	0.572	0.565	0.577	0.570

p-values in parentheses

* *p* < 0.05, ** *p* < 0.01, *** *p* < 0.001

Table. 12. Multivariate model shows that geographic location, GDP per capita and Gini-coefficient all correlate more strongly with voter turnout than ideological polarisation. Even more interesting is that the coefficient for ideological polarization is negative, meaning increased polarization should decrease turnout, other things accounted for.

Based on the results above, we can conclude that the influence of ideological polarisation on voter turnout is of a quaternary nature, with all three other variables showing higher statistical significance. The coefficient for all ideological distances changes and becomes negative, which would mean that more polarisation actually decreases voter turnout when other variables are accounted for. Fortunately, the levels of statistical significance are so low that our hypothesis cannot be refuted. The *R*² is around 0,6 for all three calculations, meaning that this multivariate model can explain a little more than half of the observed variance in the dependent variable. Because the *R*² in Model.4 is very similar to that observed in the previous models, it looks as though ideological polarisation is not very useful in trying to explain variation in voter turnout. Coherent with our findings in Table.1, but contrary to those in Table.2 and Table.3 the GAL/TAN-distance shows a higher level of statistical significance than both aggregate and Left/Right distance.

In summary, ideological polarisation within the GAL/TAN-dimension has increased over time. Ideological polarisation on the aggregate and Left/Right-dimension correlates with voter turnout at about 5% per unit of ideological distance. The number of parties does not influence the ideological distance between parties at a statistically significant level.

Additionally, the number of parties has no direct correlation with voter turnout. The rise of new parties within systems correlates strongly with an increase in ideological polarisation on the aggregate and GAL/TAN level. The Gini-coefficient was shown not to be a confounding variable for ideological polarisation with GDP per capita or geographical location still being considered. The fixed-effects model yielded a null-result but indicated that both Gini-index and GDP per capita correlate more strongly with voter turnout than ideological polarisation. Lastly, the multivariate model confirmed these findings that geographical location, Gini-coefficient and GDP per capita all correlate more strongly with voter turnout than ideological polarisation.

5. Analysis and Discussion

5.1. Analysis

In the first Table.1 we observe that the ideological polarisation within European party systems has increased during the last 20 years in regard to the GAL/TAN-dimension. The aggregate polarisation has increased as well but is below the commonly used cut-off for statistical significance, although it is worth mentioning that it still outperforms the Left/Right-distance both in terms of p-value and R^2 . From these findings, we conclude that European parties tend to disagree more with each other in regard to socio-cultural questions than economic ones over time. Because of lacking statistical significance for the decrease in Left/Right polarisation we can say that European multiparty systems have indeed become more ideologically polarised between 1999-2021.

In Table.2 and Table.3 it was shown that ideological distance correlates with voter turnout, all else being equal. This is especially true for the aggregate distance which yielded both the most statistically significant results and highest values of R^2 (note that highest is relative and that R^2 -values below 0.1 do not explain a lot of the variation in the dependent variable). Furthermore, even though the correlation exists when examining our complete dataset, it is

more significant after the omission of some countries. This leads us to the conclusion that the correlation between ideological distance and voter turnout in fact is stronger in “real” multiparty systems. These findings of ideological polarisation coinciding with voter turnout are coherent with our theory, which states that policy distinctiveness should mobilise voters, as it reduces both cost of political participation and perceived stakes of the elections.

Table. 4 shows that the emergence of new parties in European party systems coincides with increases in ideological polarisation. This means that new parties tend to emerge on the “outskirts” of the political spectrum, similar to Party.Y in (gph.8). Recalling the analogy by Hotelling (1929) of new bakeries opening on a street, the emergence of new parties and their positive effect on ideological polarisation indicate centripetal competition between parties. The new parties should emerge as a consequence of old parties moving “too much” towards the middle of the ideological plane, which presents opportunities for new parties to better accommodate voter preferences on the outskirts of the electorate. This claim is not supported by Table.5 which shows that countries with a constant number of parties between elections generally experience an increase in ideological polarisation, implying that competition is in fact centrifugal. If the increase in ideological polarisation is a consequence of “new” parties with more radical ideological positions emerging, it cannot be categorized as a type of competition within Downs (1957) framework, as this only applies to pre-existing parties. Thus, even though ideological polarisation increases, we cannot claim that this is a case of centrifugal competition.

Because Table.6 and Table.7 show no significant correlation between the number of parties and ideological distance or voter turnout, it seems as though the research method is relatively robust for examining multi-party systems and is not heavily skewed by the number of parties. Tests for heteroskedasticity confirmed that a linear OLS regression method was suitable for the research project.

When examining the coefficient-plots by geographical location we notice that the correlation between the ideological polarisation and turnout is less significant within these groups. Although some of this can be attributed to the lower number of observations ($N_{\text{Western Europe}}=68$, $N_{\text{Eastern Europe}}=48$), not all of it can. Results also show that countries in western Europe generally experience higher ideological polarisation. Investigation of other country-specific variables such as GDP per capita and Gini-index yielded mixed results. Results from

Table.10 indicate that Gini-index did not correlate with any types of ideological polarisation, which means that it is not a confounding variable. This goes against the intuition that greater economic inequality should increase the calls by low-income citizens for redistribution and high-income citizens to uphold the status-quo, which if capitalised on by party strategies, should increase ideological polarisation within the Left/Right-dimension. GDP per capita correlates positively with voter turnout at a statistically significant level, but also with ideological polarisation. Thus, ideological polarisation could be a mediating variable through which GDP per capita influences voter turnout. In order to establish a more causal relationship here one would need to isolate the effect and control for even more variables. Both GDP per capita and geographical location show statistically significant correlation with ideological distance, but it is hard to explain why. The post-materialistic argument has its limitations as it mainly can explain the salience of different ideological questions, rather than increased ideological differences within party systems.

The fixed-effects model in Table.12 says that correlation between ideological polarisation and voter turnout is not statistically significant. In Table.13 we observe that the correlation between ideological distance and voter turnout is secondary, tertiary or quaternary to the strength of correlations between GDP per capita, income inequality (Gini-index) and geographical location. The difference in a given country's location (West/East) was the most statistically significant variable, followed by the Gini-index and GDP per capita. None of the variables for ideological polarisation reach statistically significant p-values, rejecting our main hypothesis H2. Because geographical location is the most statistically significant variable, it seems as though there could be a difference in political culture between western and eastern Europe, where the aforementioned is more likely to experience higher turnout. This line of argument is coherent with findings from Table.9 which indicate differences in ideological polarisation between these groups. These findings seem to reject theories of voting behaviour that emphasise policy distinctiveness as a cause for electoral mobilisation, such as the ones proposed by Abramovitz & Saunders (1998), Dalton (2008) and Bumgardner (2016).

The measure of aggregate ideological polarisation outperforms the disaggregated distances in most calculations and aspects such as coefficient, R^2 and p-value which indicates that the usage of a two-dimensional ideological plane seems warranted, as it seems to account for more of the nuances when it comes to ideological preferences. Thus, even though the

GAL/TAN-dimension has been criticized for having a “class”-bias, evidence from this research suggests that the usage of GAL/TAN and Left/Right in conjunction with each other can be defended.

Now to answer our main question: Does ideological polarisation correlate with voter turnout? The answer is that it does, on a simple level. However, findings show that there is not enough of a relationship between the two variables to establish causality, as other variables were shown to correlate more strongly with turnout. When we attempt to account for the effects of other variables and isolate ideological polarisation as the only explanatory variable it falls short. Like so often in political science, the number of factors and variables that can influence outcomes is almost unlimited, and so are their possible consequences when combined. Thus, even just being able to eliminate one variable as a potential explanation bodes well for further research. So then, have we solved the entire puzzle of voter turnout in multiparty systems? The obvious answer is “NO”, but I’d argue that we are one step closer than we were before.

5.2. Further research

Including and comparing different datasets, such as the V-Party and WZB Manifesto Project could be interesting for further research on the subject as it could help to further validate the findings. Another possible important dimension is the salience of different ideological questions within party systems. For example, if the Left/Right-dimension is a more salient point of contestation among parties within a system, it would make sense to weigh differences along this dimension more than along the socio-cultural.

Another idea is to perform the same calculations but weigh in vote-share and make categorical distinctions between parties. This would open the possibility to study the direction of electoral competition more extensively than was possible in this paper. If competition between the major parties is shown to be centripetal, maybe this is exactly what enables new parties emerge on the outskirts of the electoral distribution, similar to the bakeries in Hotelling’s (1929) example.

Finally, exploring the causes of lower voter turnout and ideological polarisation in Eastern Europe would help add nuance to the descriptive research within the field.

Word Count: 9989

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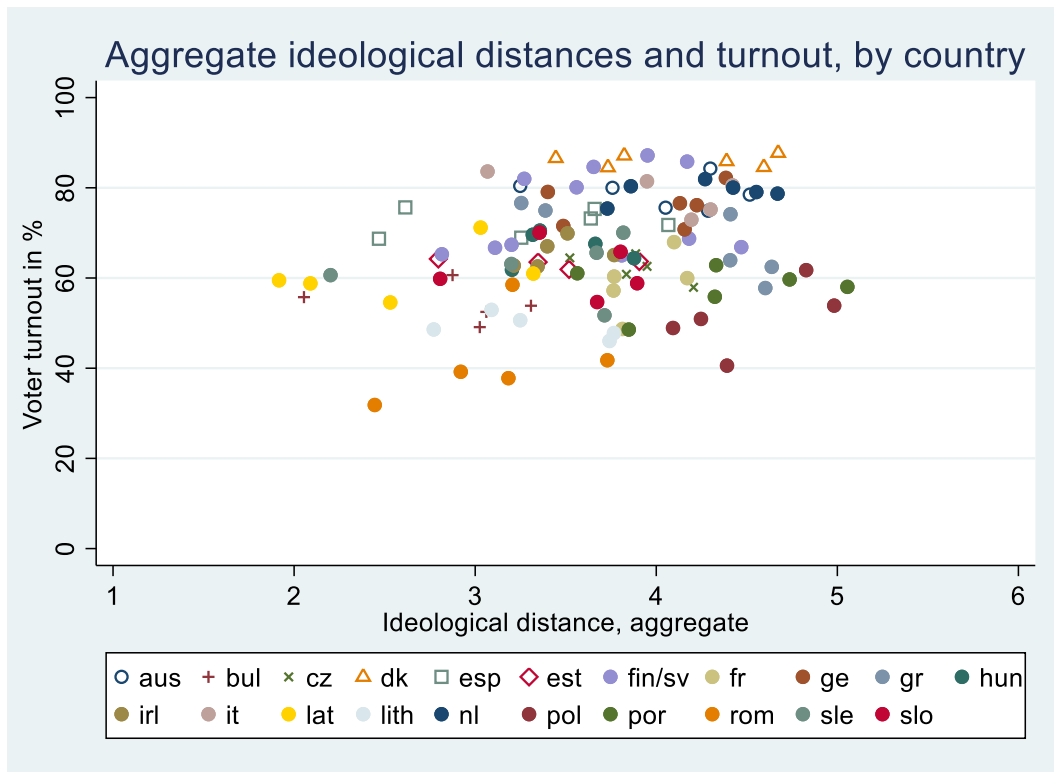
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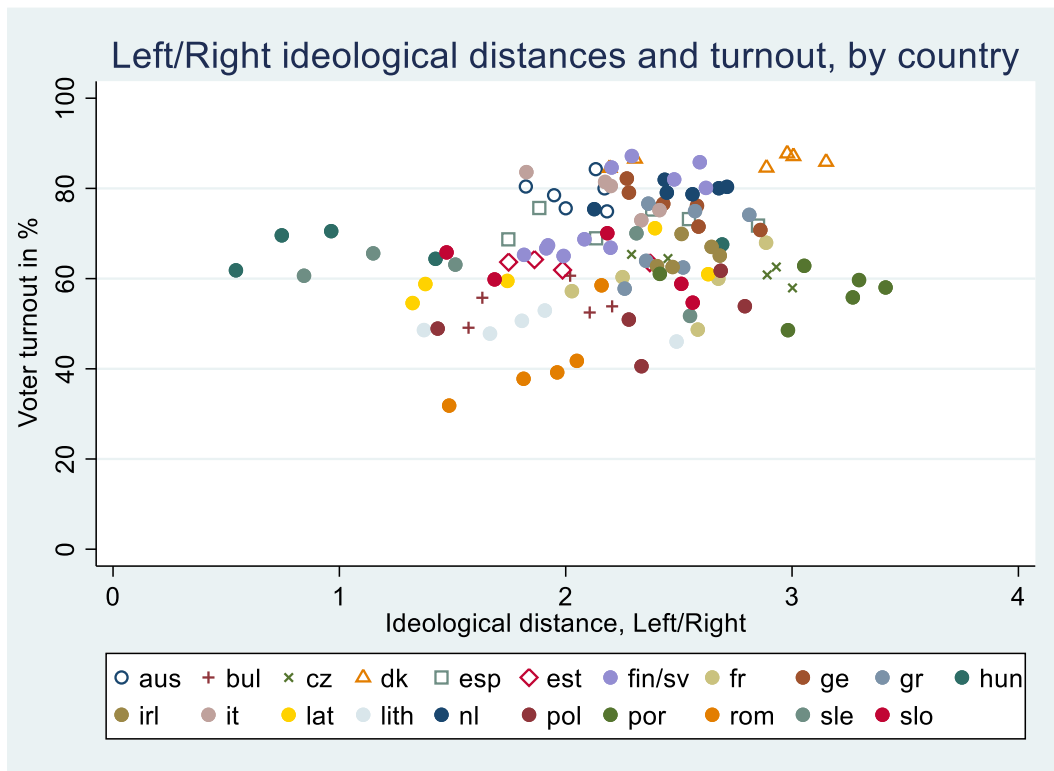
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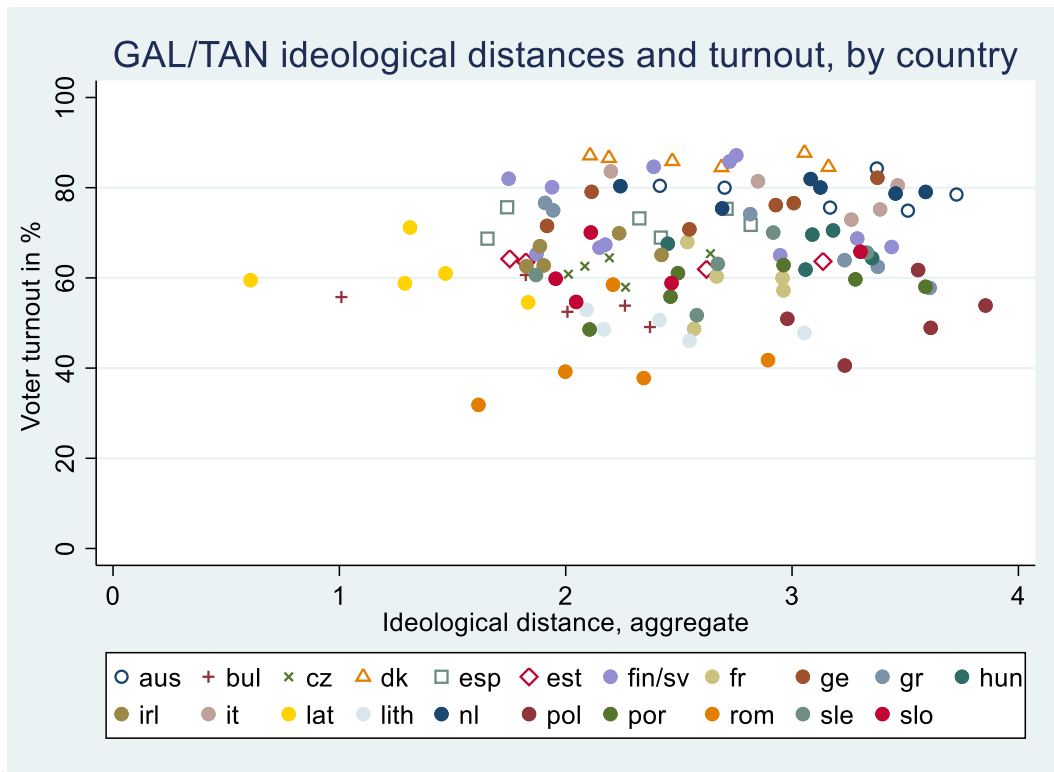
7. Appendix



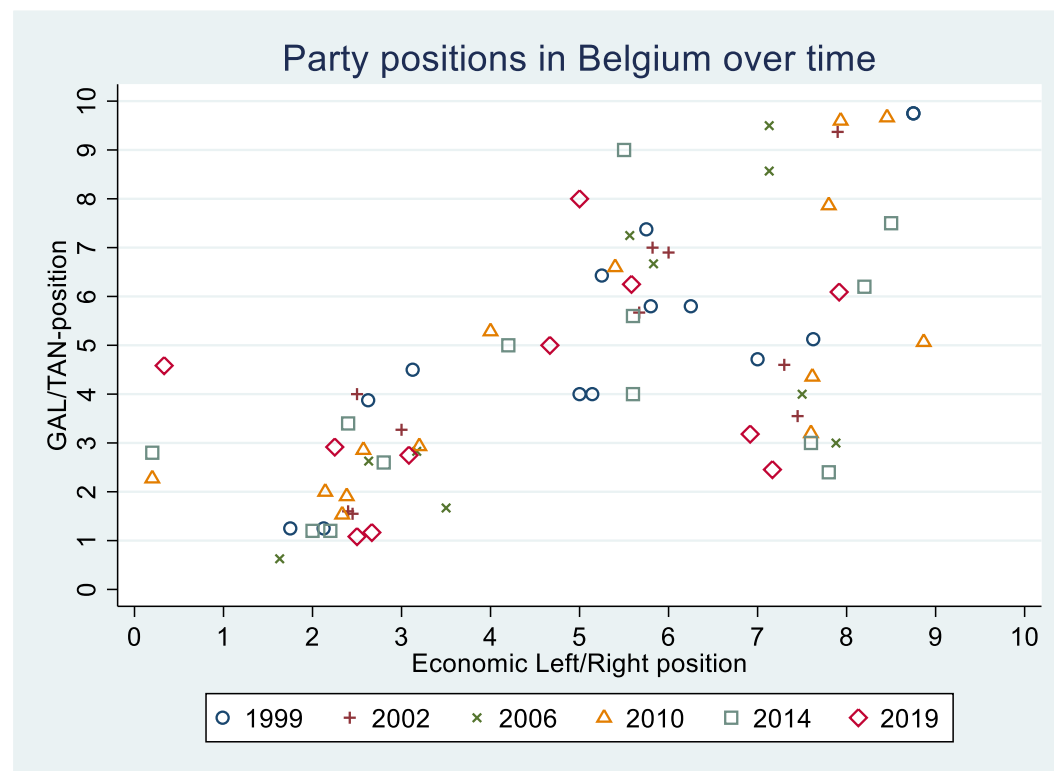
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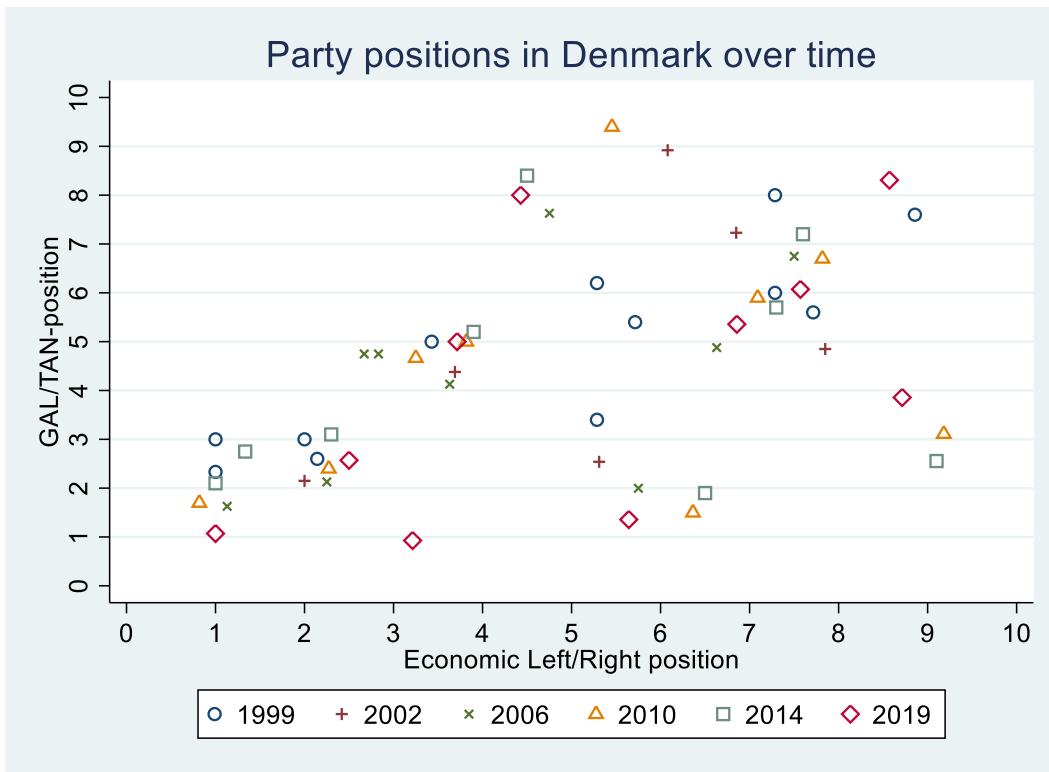
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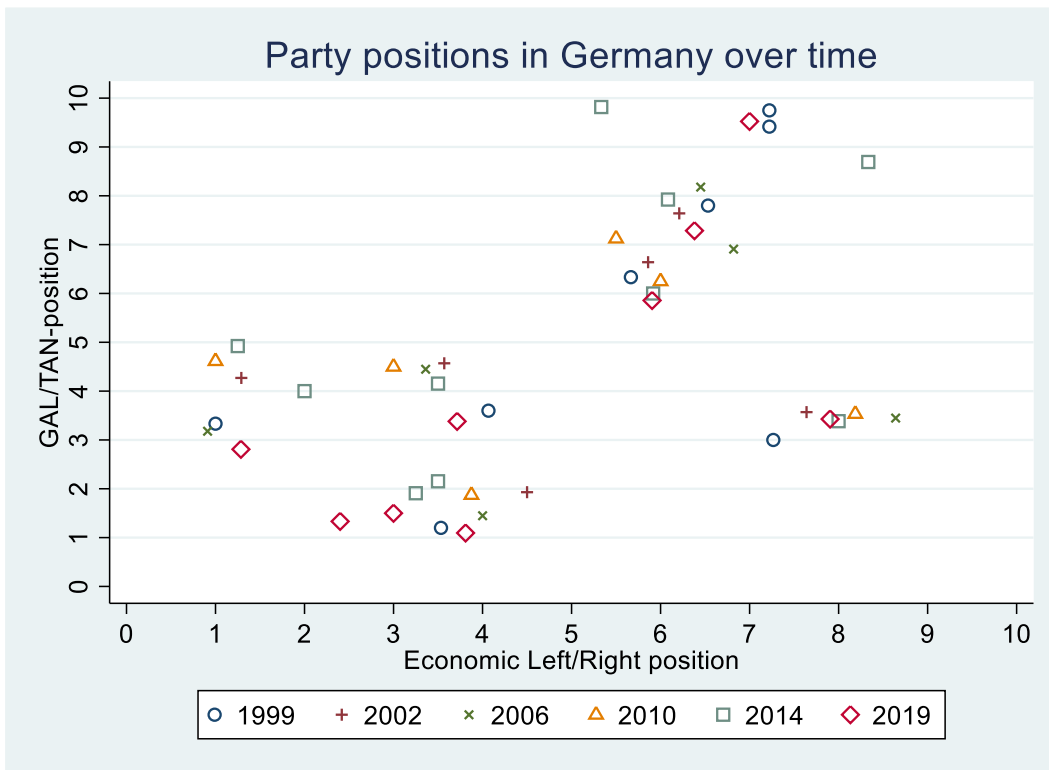
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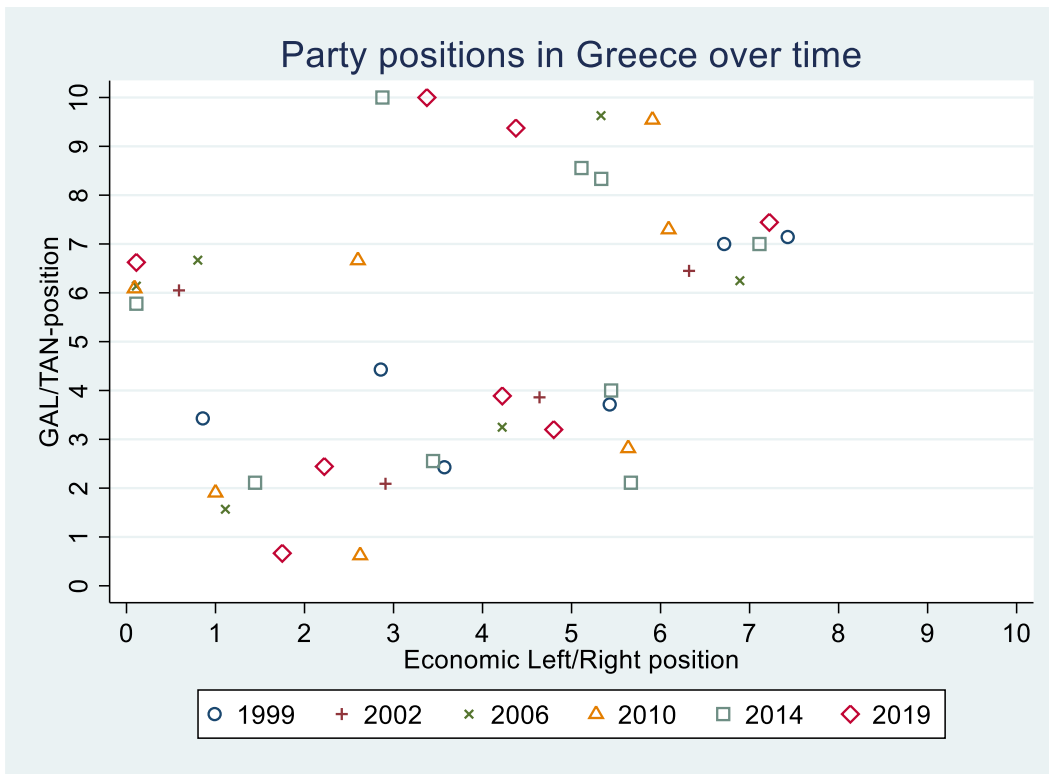
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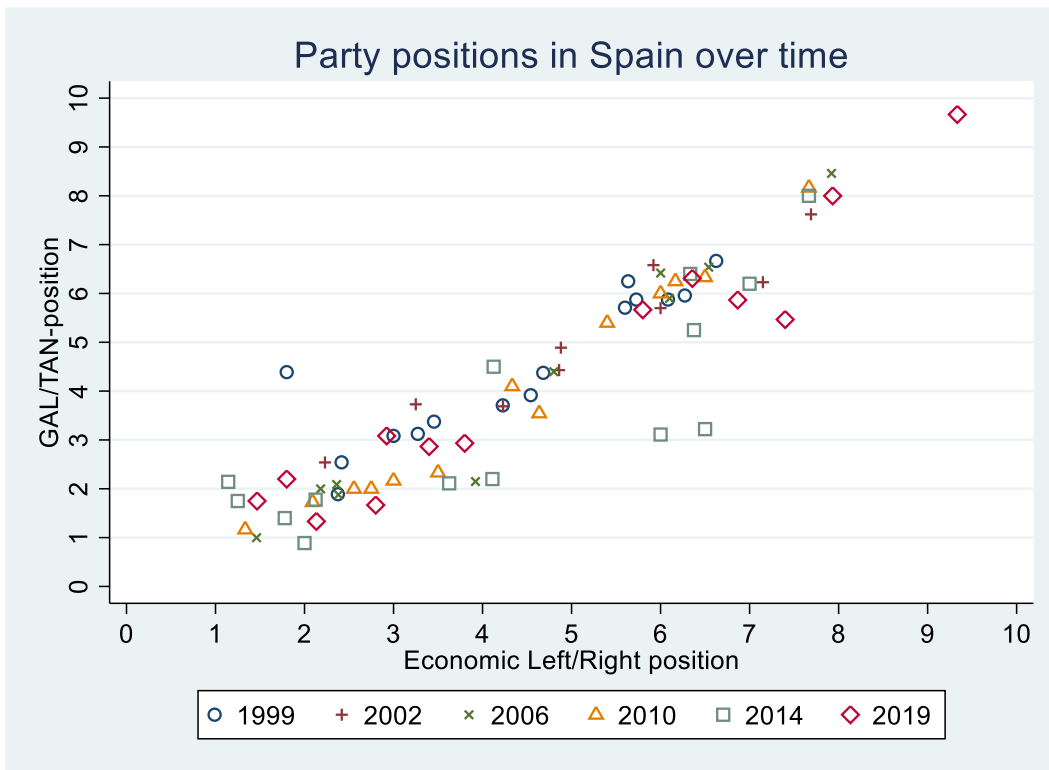
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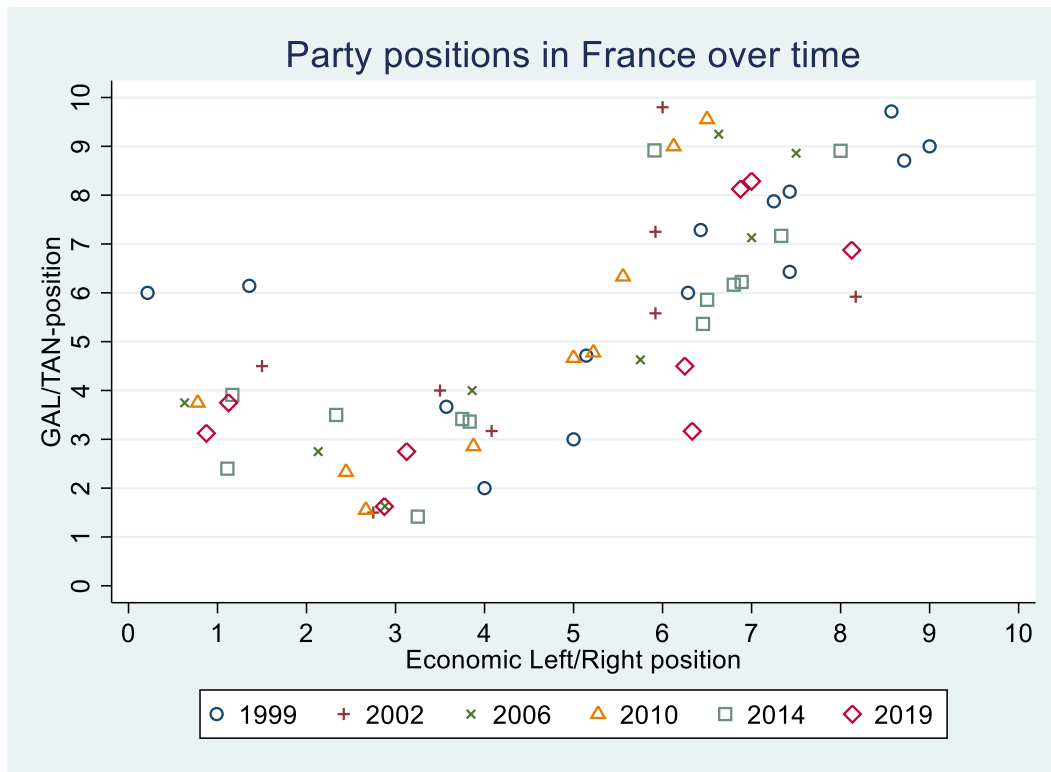
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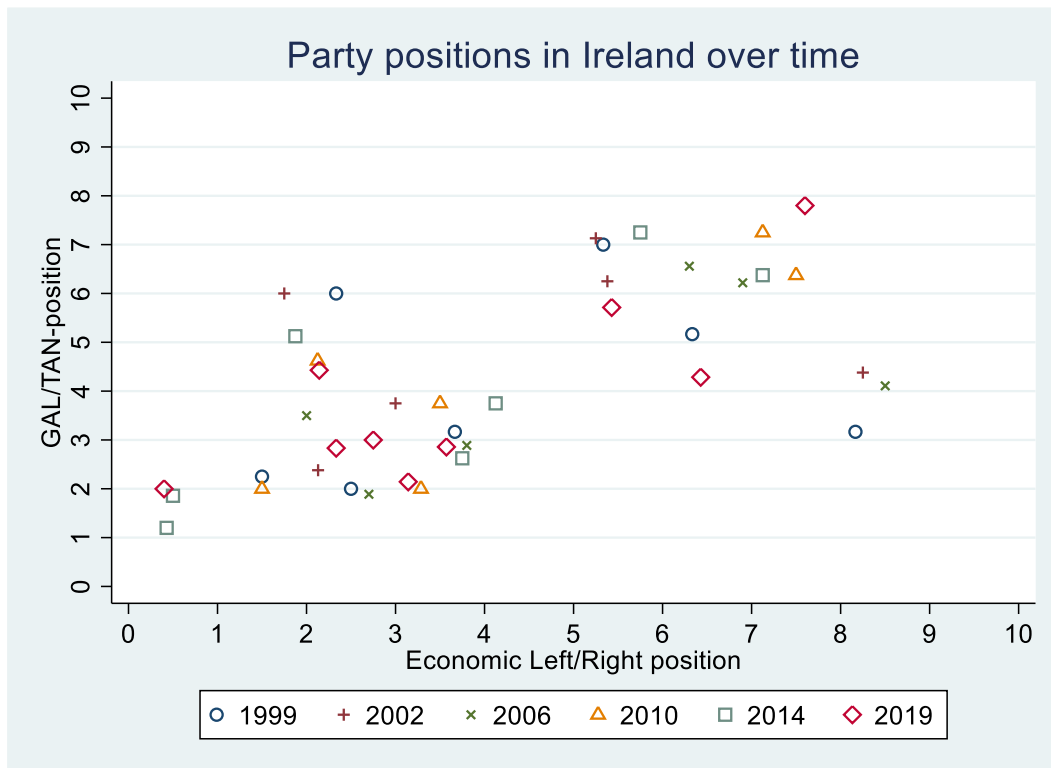
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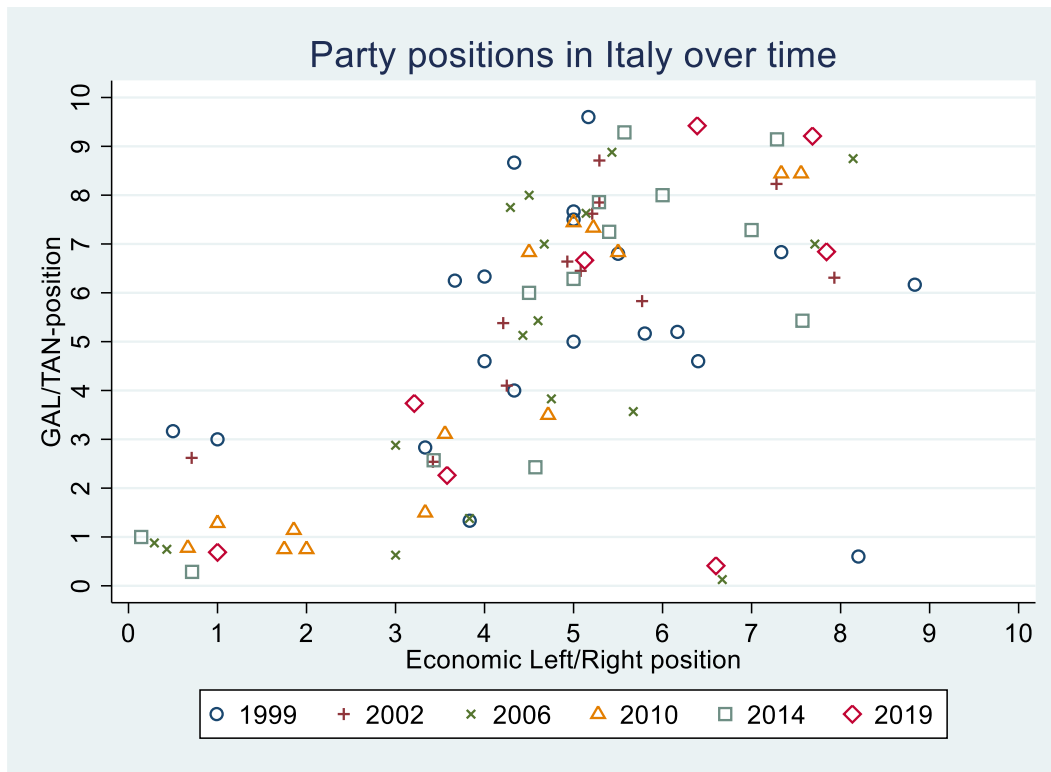
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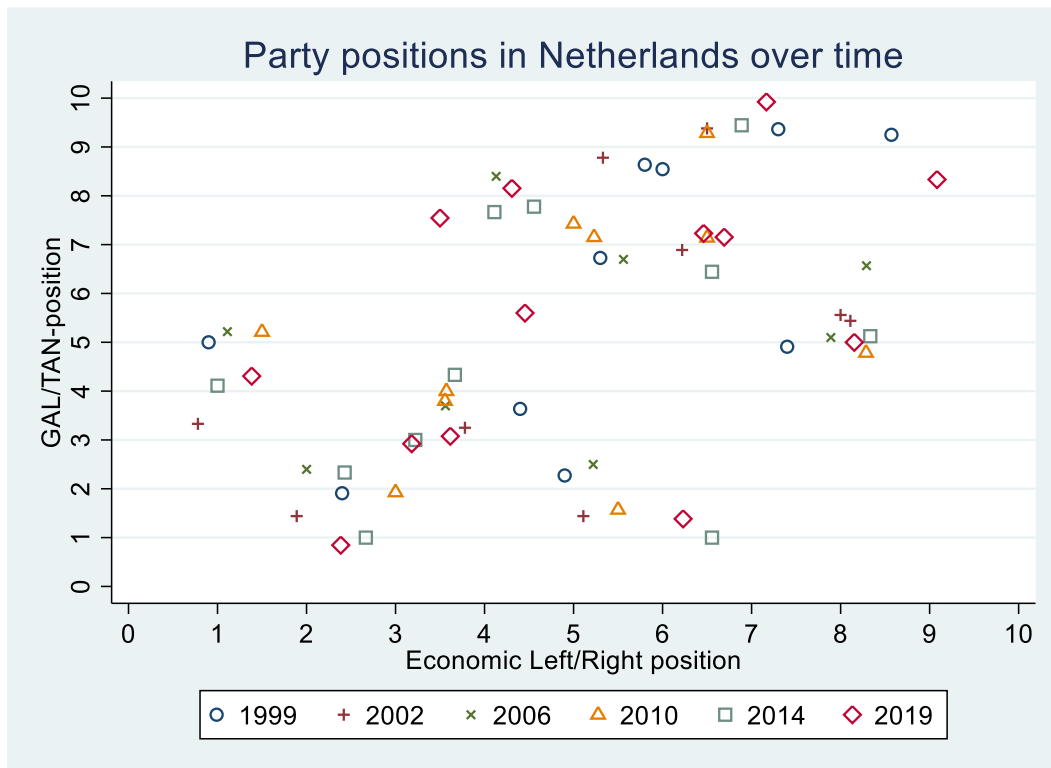
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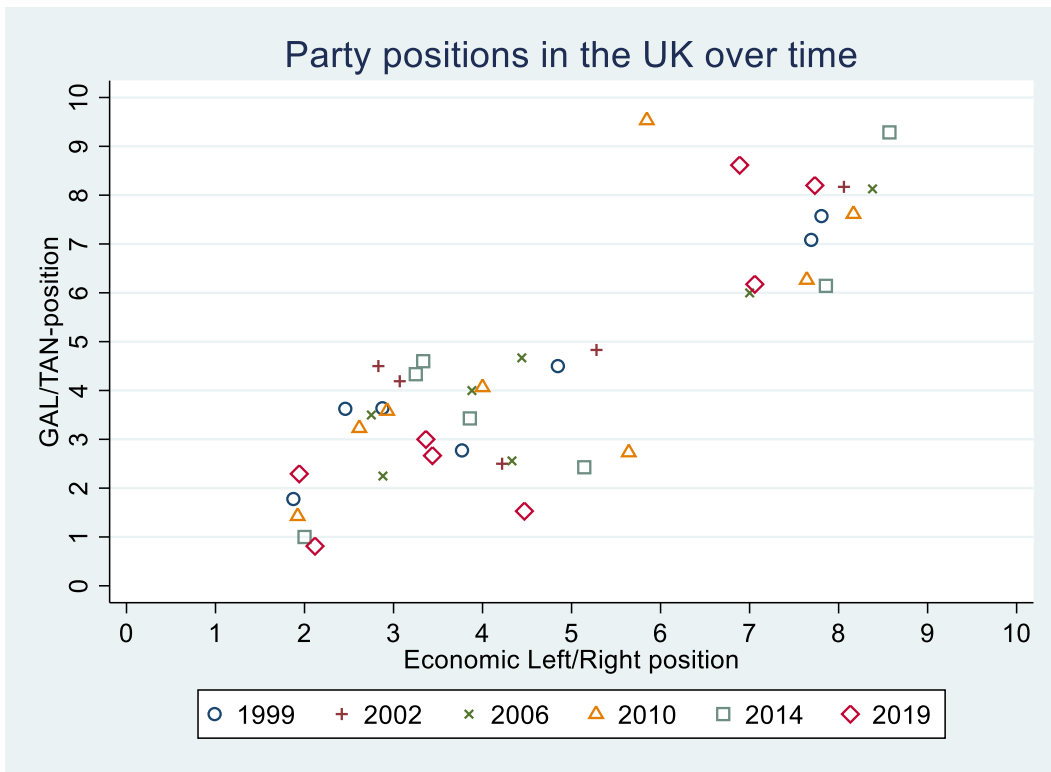
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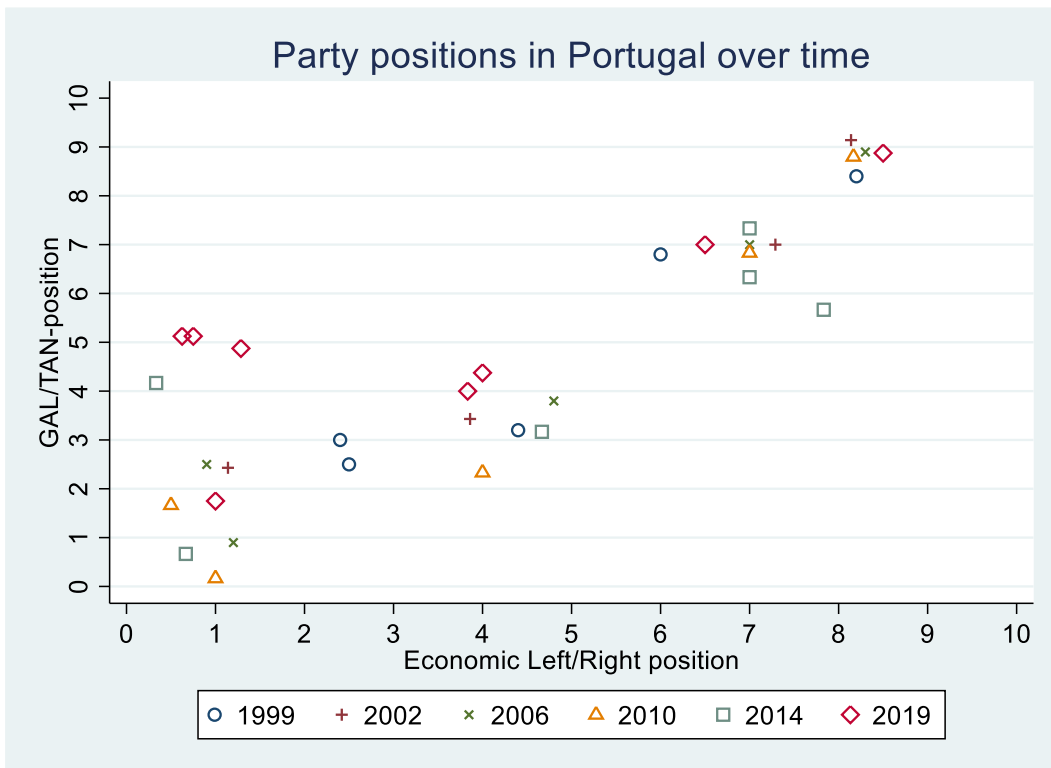
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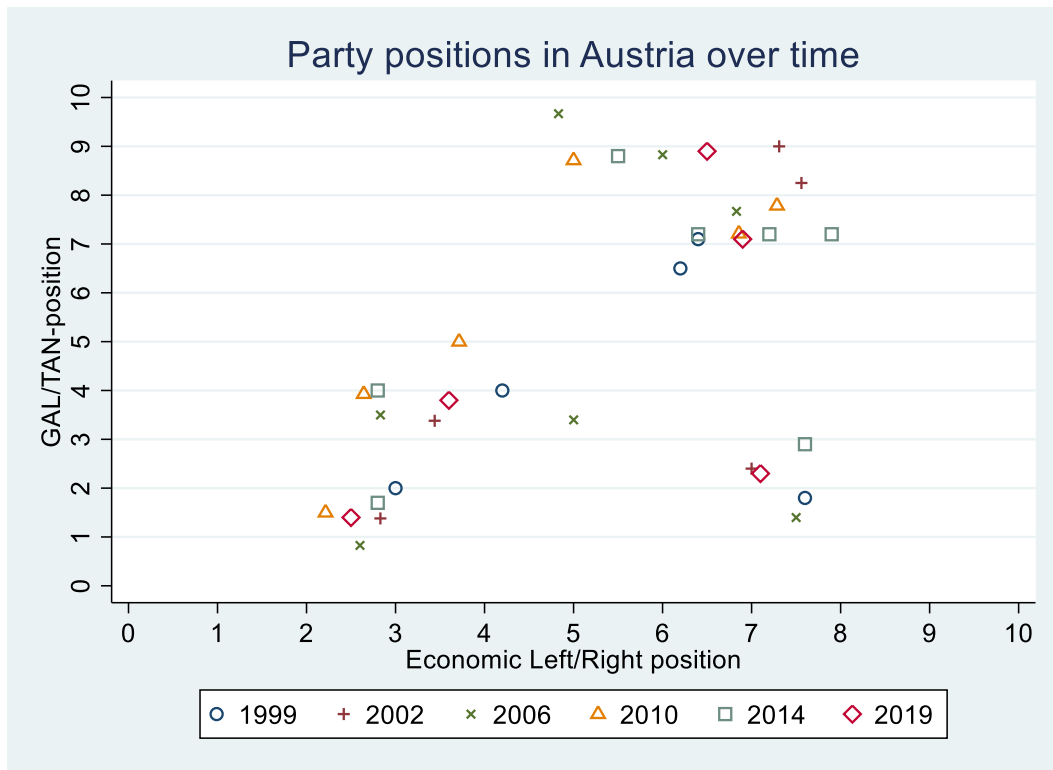
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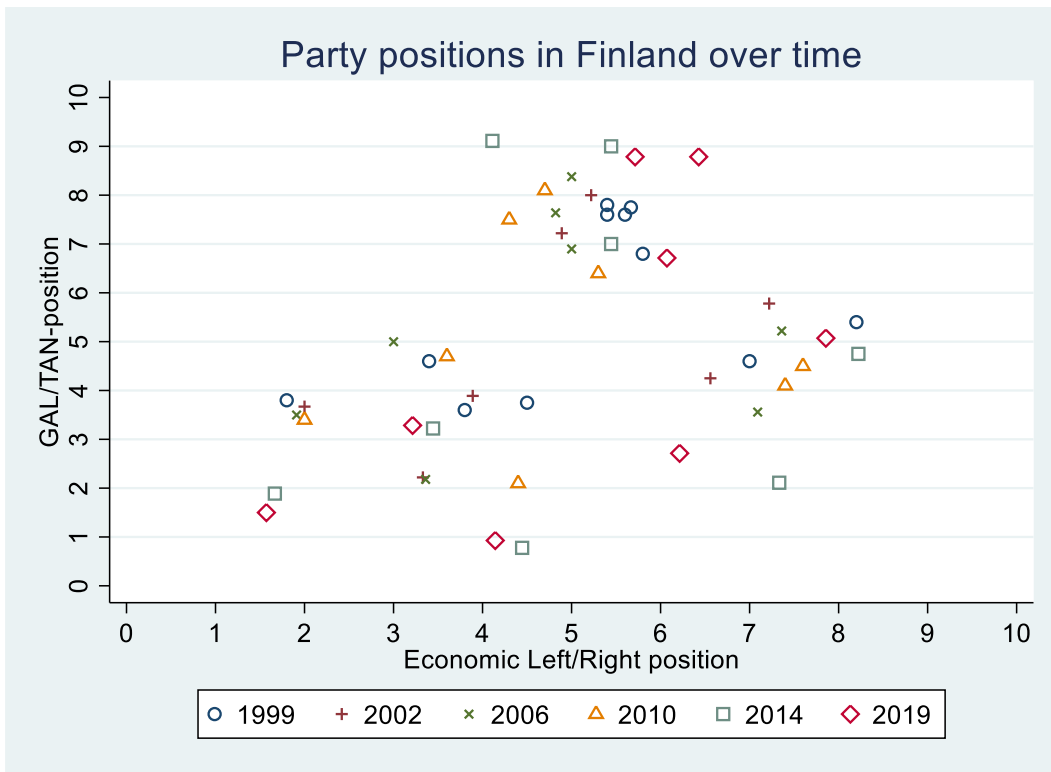
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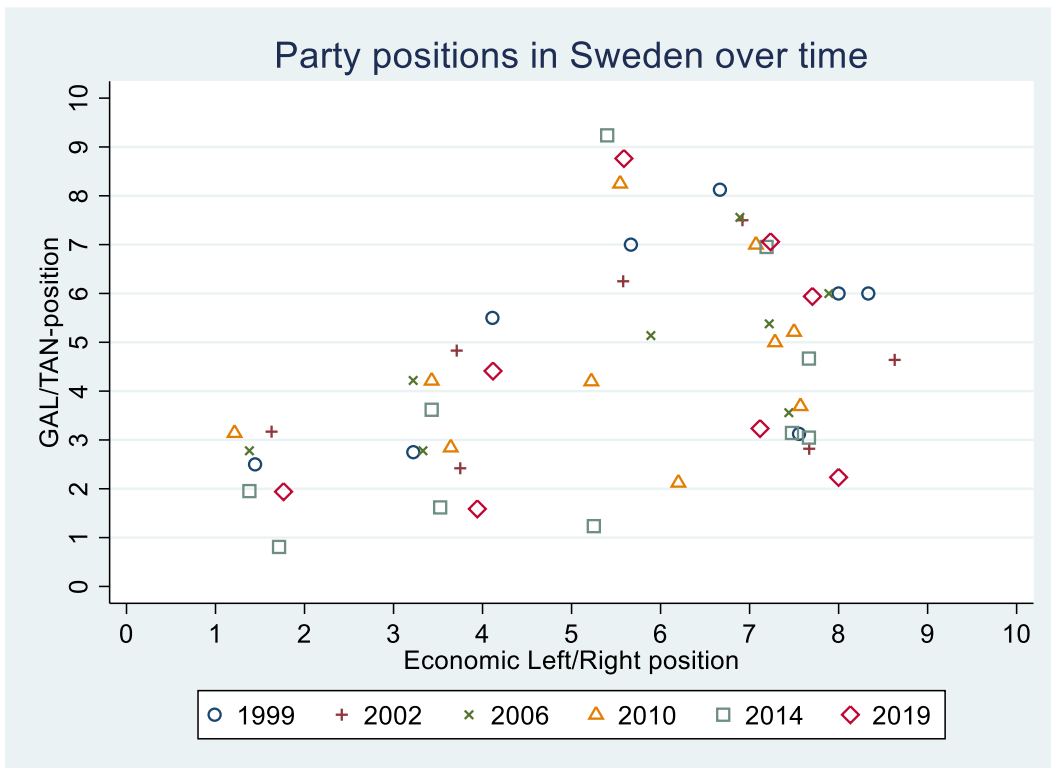
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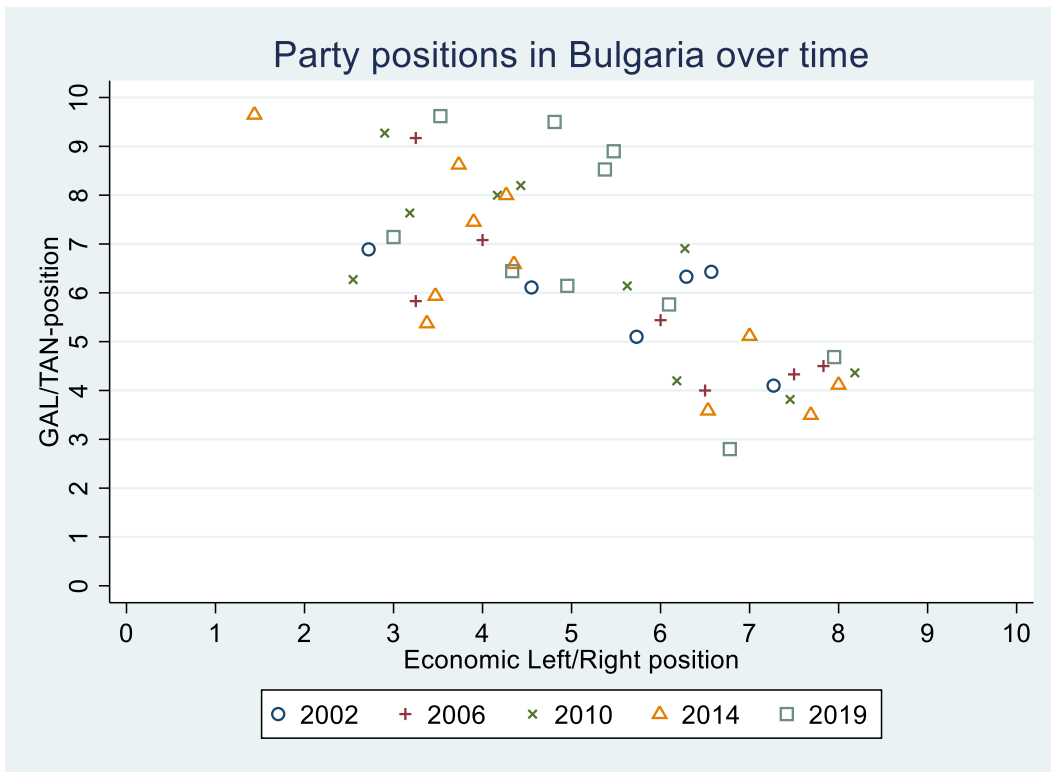
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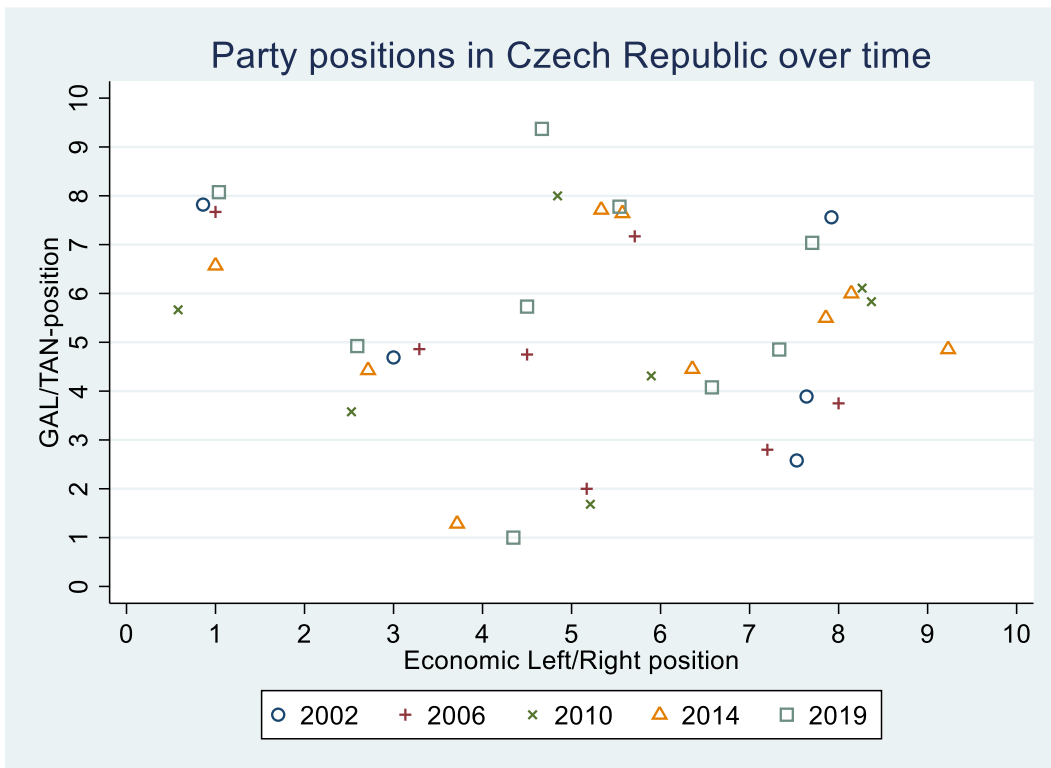
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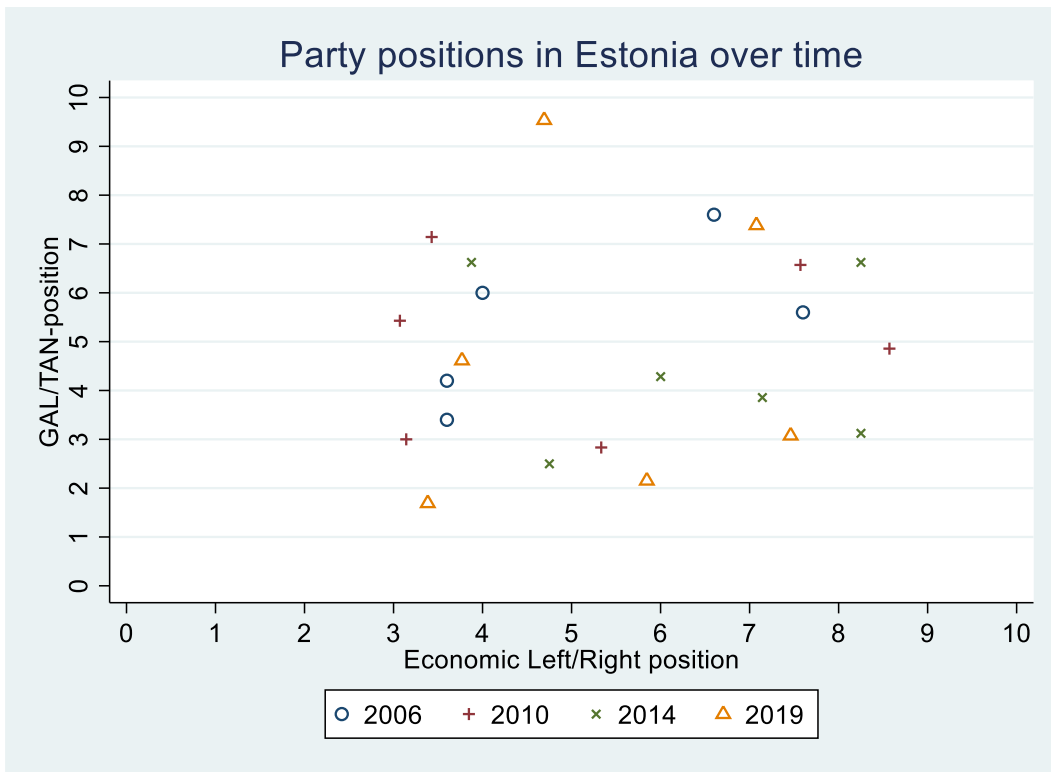
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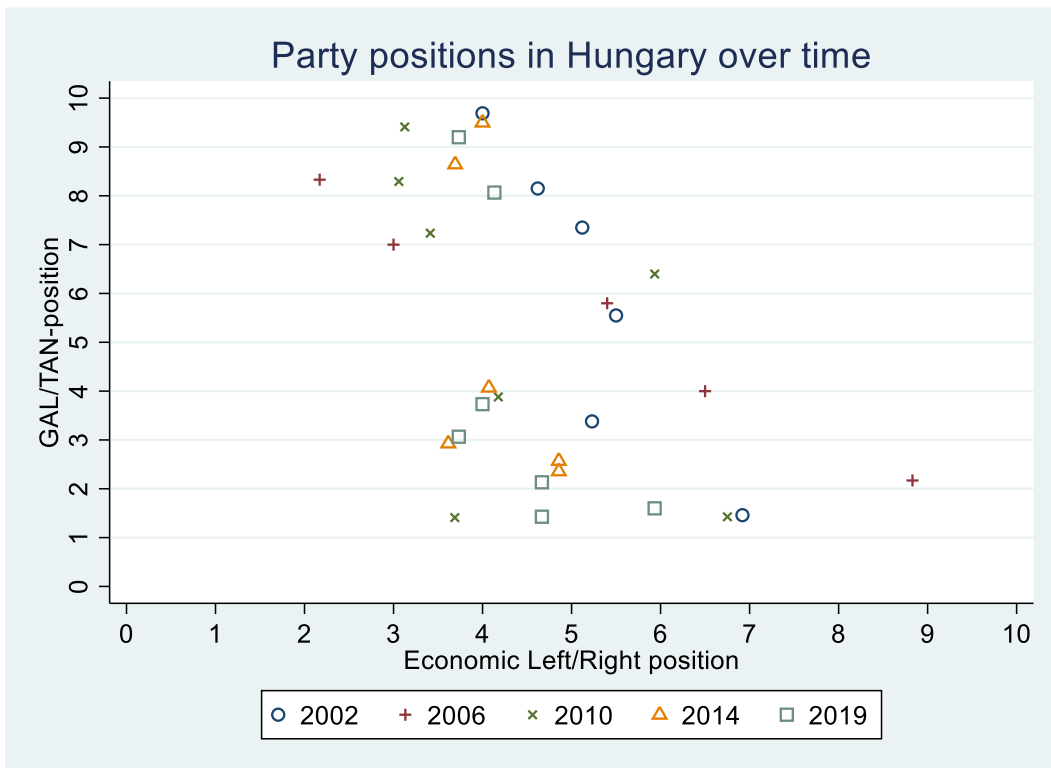
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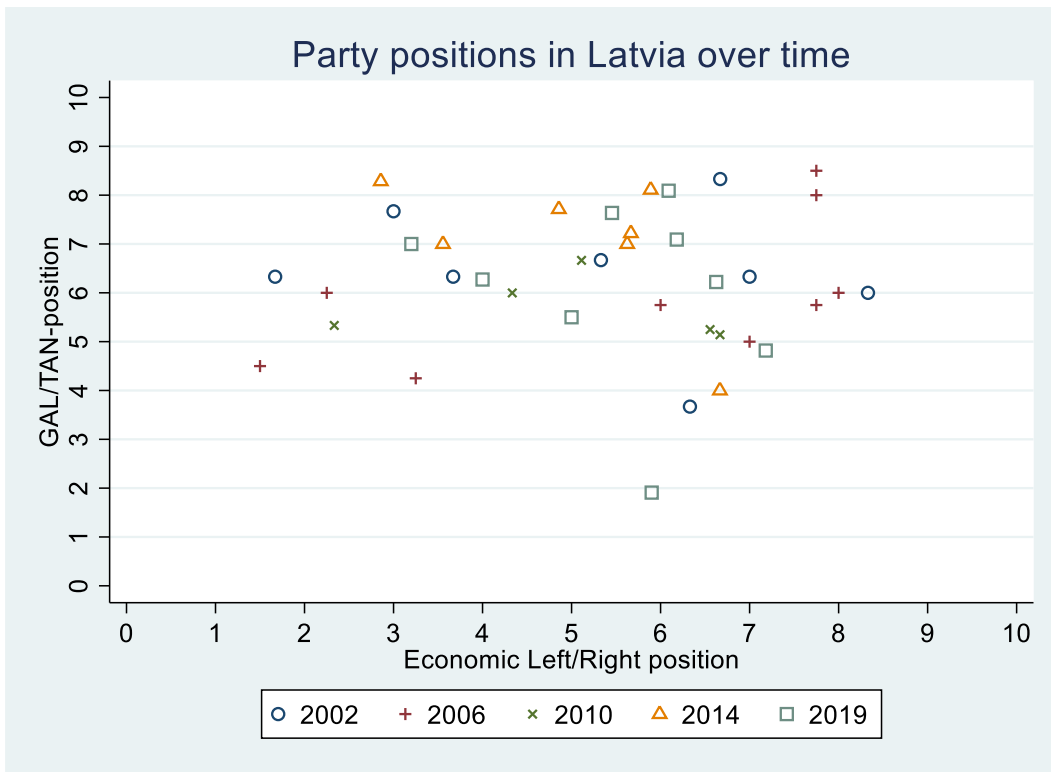
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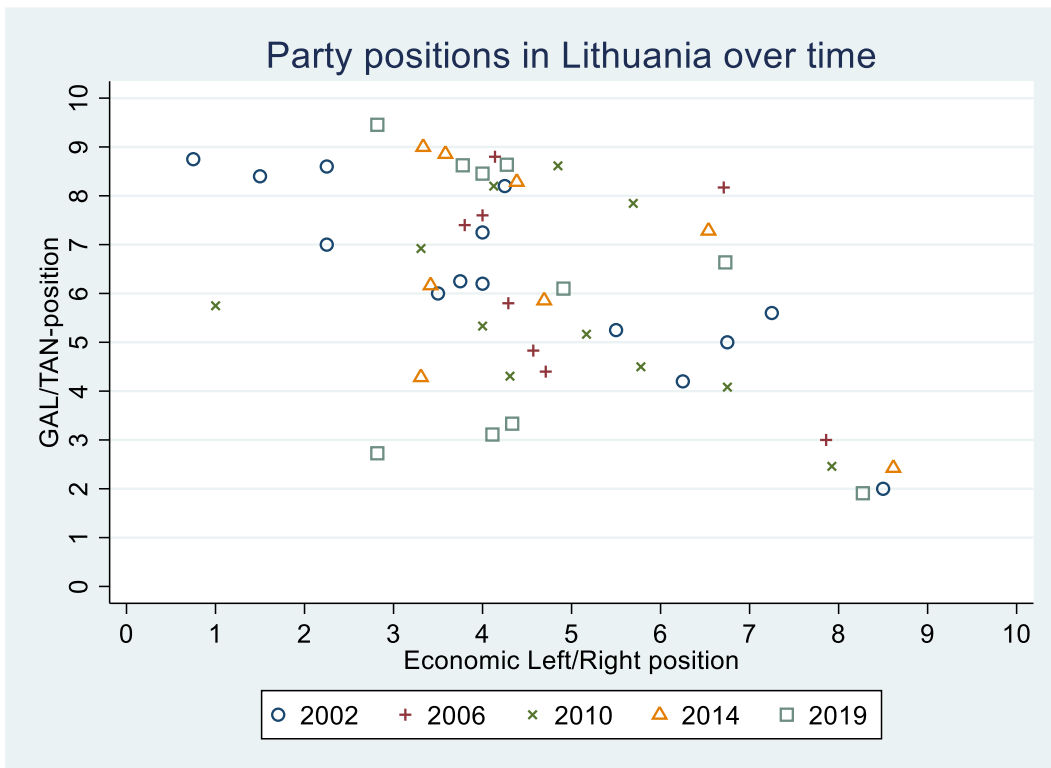
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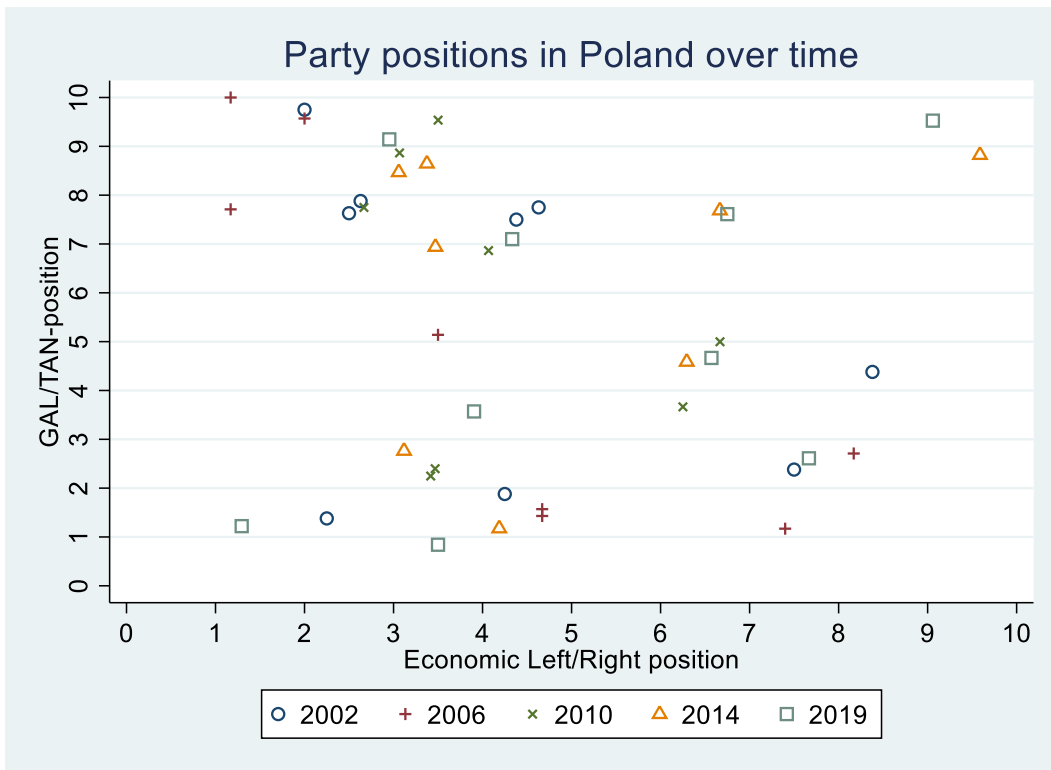
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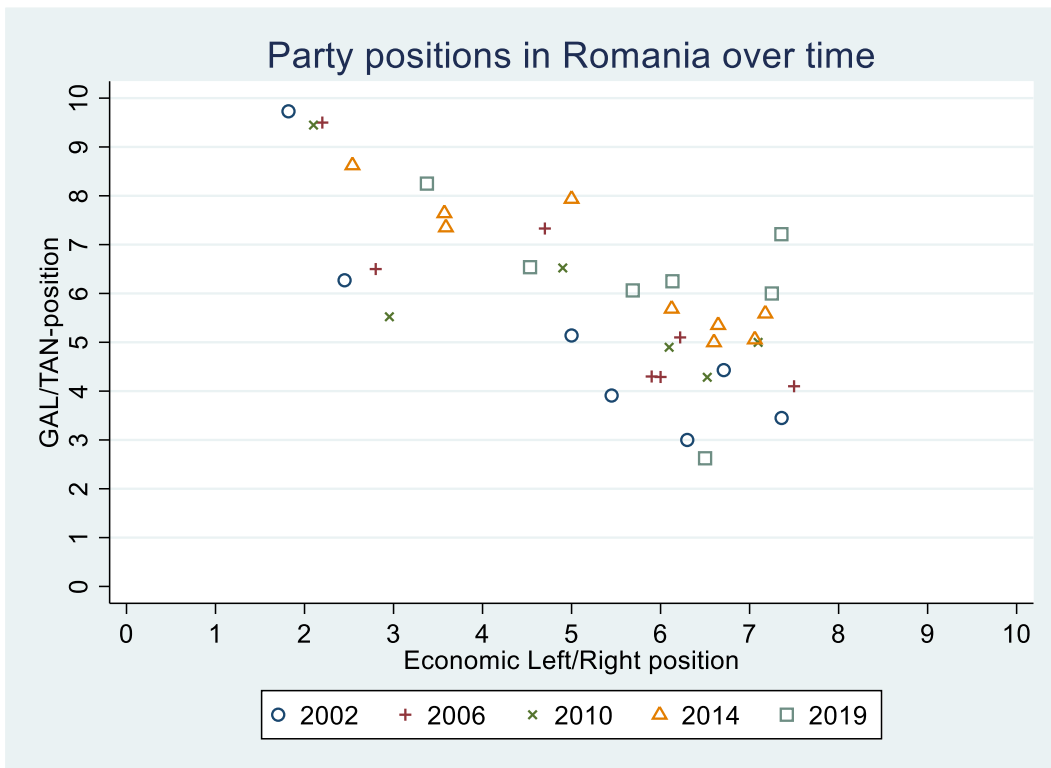
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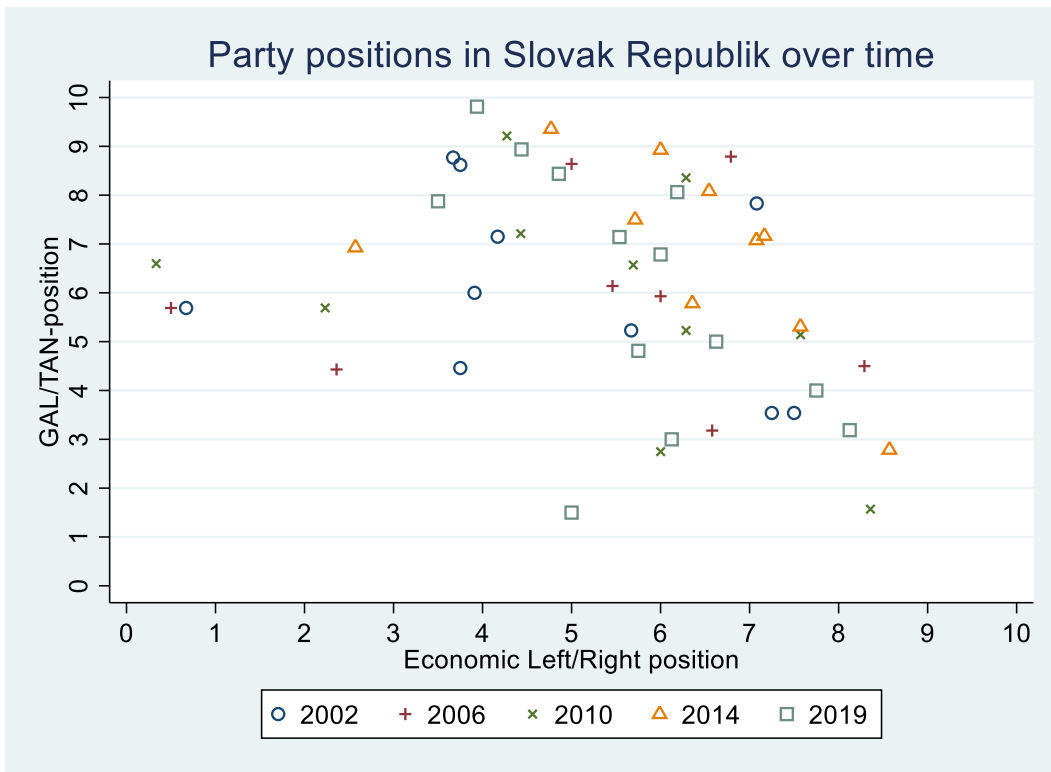
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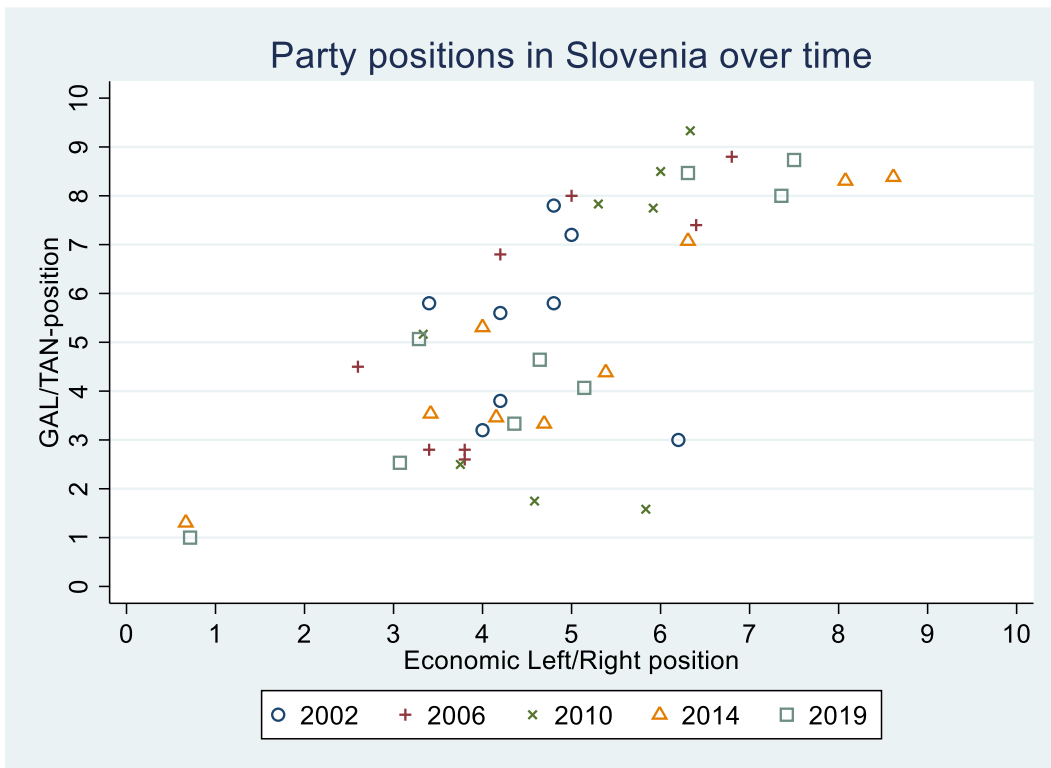
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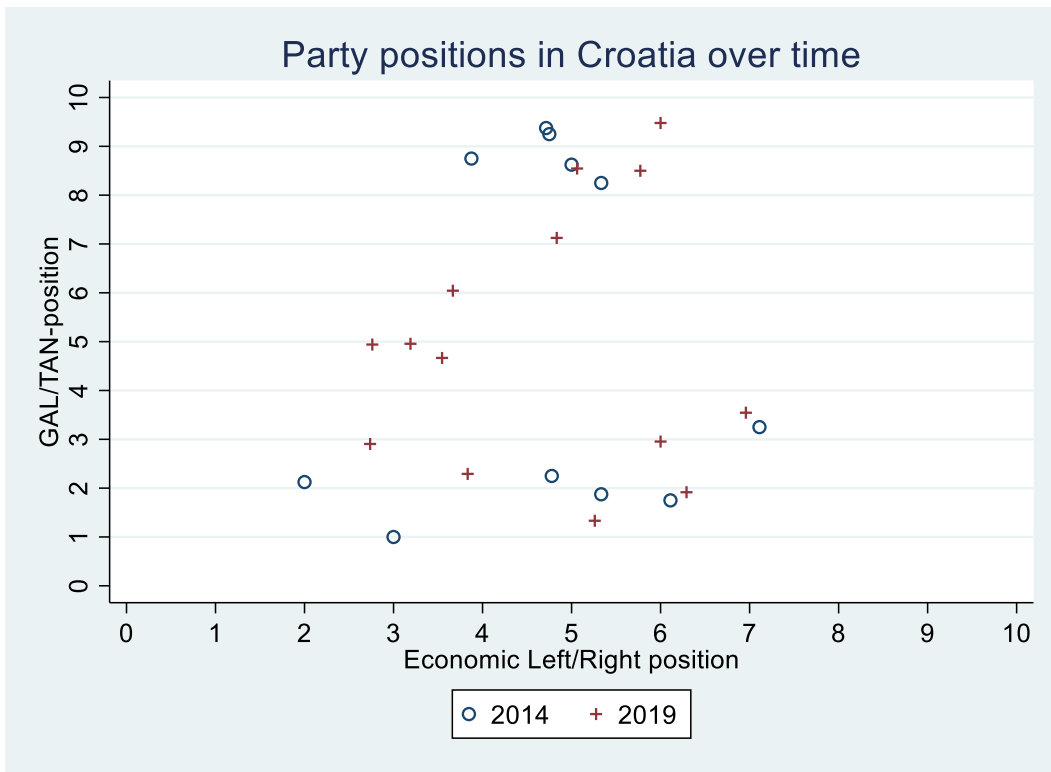
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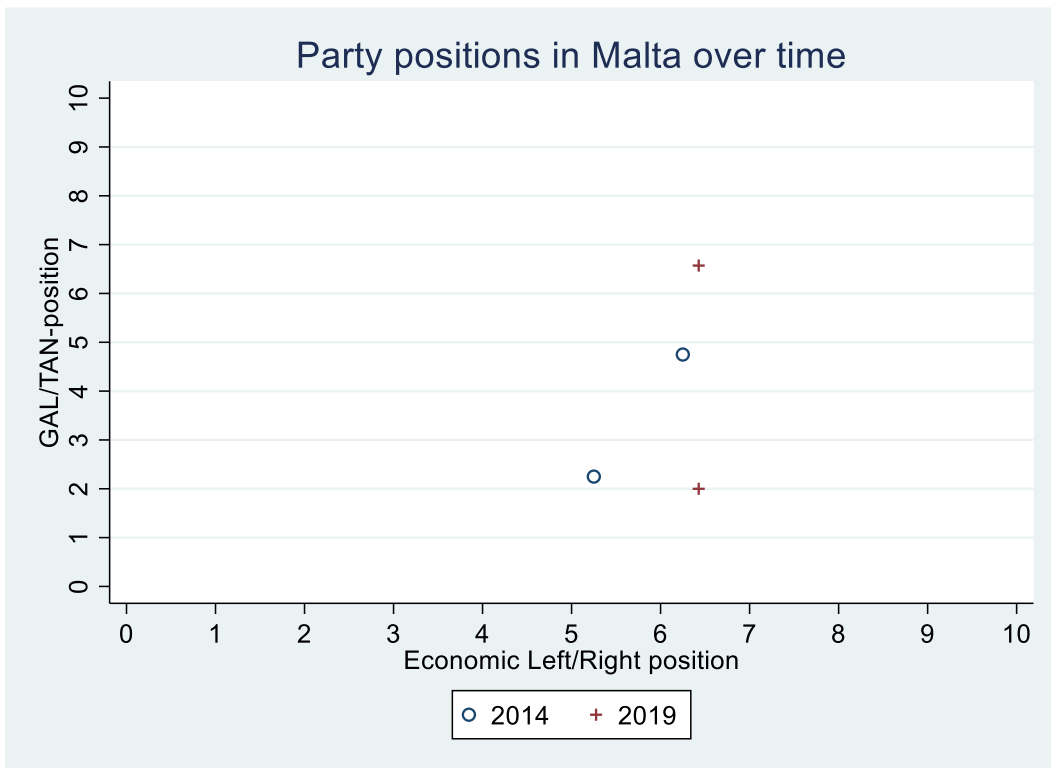
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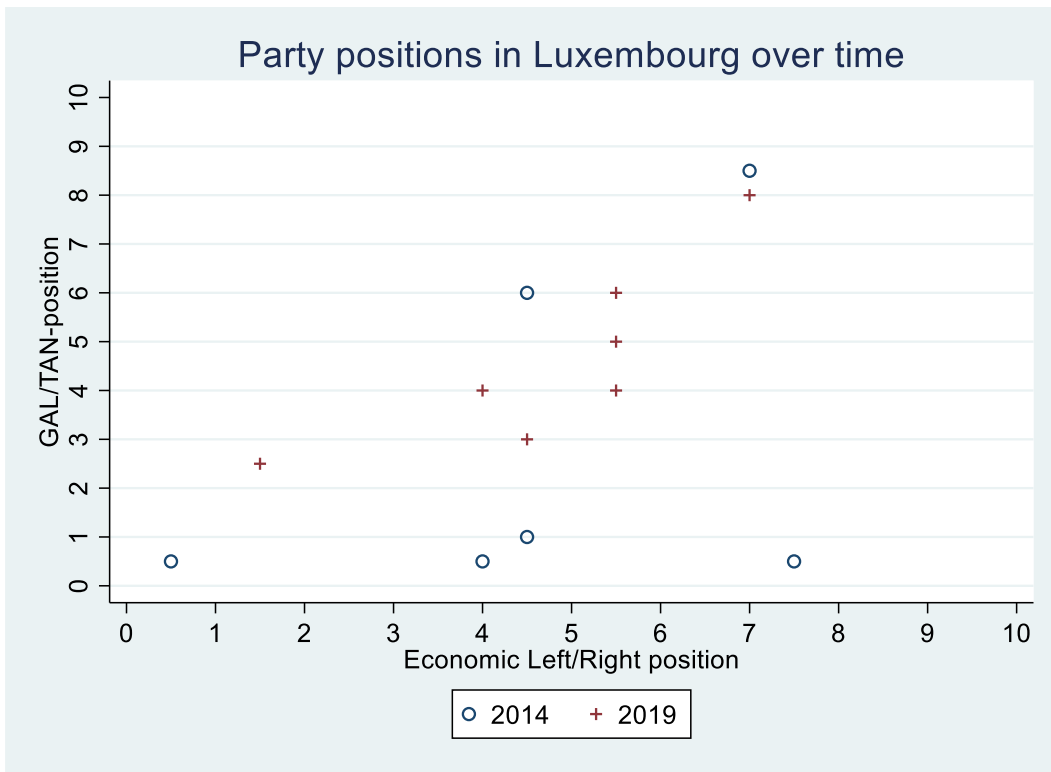
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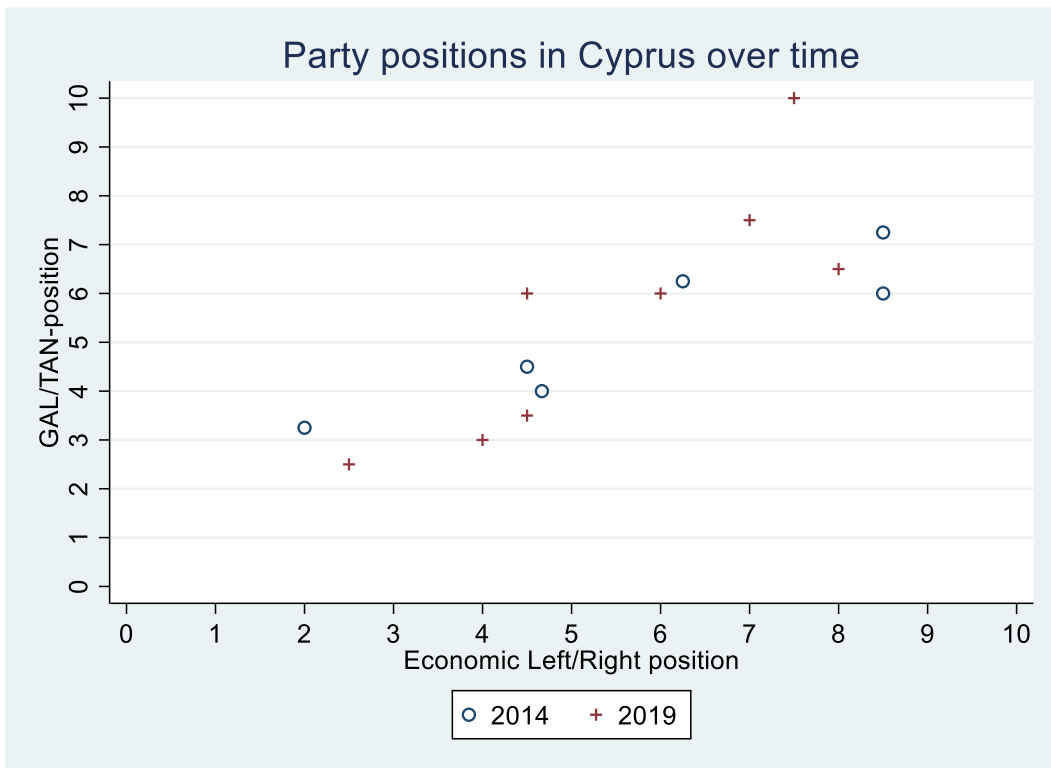
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D1.

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

Assumption: Normal error terms

Variable: Fitted values of resid_agg_dist

H0: Constant variance

chi2(1) = 0.42

Prob > chi2 = 0.5177

D2.

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

Assumption: Normal error terms

Variable: Fitted values of resid_lrecon_dist

H0: Constant variance

chi2(1) = 0.10

Prob > chi2 = 0.7484

D3.

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

Assumption: Normal error terms

Variable: Fitted values of resid_galtan_dist

H0: Constant variance

chi2(1) = 0.48

Prob > chi2 = 0.4890