The consequences of your vote

The role of cognitive dissonance in political elections in the Netherlands

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This paper analyses the role of cognitive dissonance in political elections. Using European Social Survey data from 2002 to 2018, I investigate whether individuals who voted at parliamentary elections in the Netherlands feel closer to a political party than individuals who were ineligible to vote at that time. I use propensity score matching to match eligible voters to comparable ineligible voters. The results suggest that there is some evidence that individuals who voted at a parliamentary election feel closer to a political party than individuals who were ineligible to vote. When reducing the age difference between the two groups, the effect slightly increases. Finally, when I only use surveys that are held in the same year as parliamentary elections were held, the results show that individuals who voted during an election feel around 10% closer to a political party than individuals who did not vote. If polarisation is seen as nuisance, politicians and especially policymakers could try to put more focus on explaining cognitive dissonance and the role it plays in political elections.

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I. Introduction

Cognitive dissonance has found its way towards political elections. When voting during elections, individuals who vote for a candidate might hold a favourable opinion two years later, simply because they rather feel good about their vote. Beasley and Joslyn (2001) were among the first to study the relationship between cognitive dissonance and voting. In their research they studied the difference in individuals' opinions before and after voting for U.S. Presidential Elections. They find that the evaluative distance (which can be explained as the difference in opinion about presidential candidates between individuals) increases for individuals who voted, compared to individuals who did not vote. This may seem like a causal effect: voting leads to an increase in evaluative distance, or polarisation. However, the main reason why this cannot be interpreted as a causal effect is because of voter endogeneity. Individuals who did not vote during the election will most likely have a less favourable opinion of a candidate than individuals who did vote, as they purposely did not vote. This means that you can not compare individuals who voted to individuals who did not vote directly because they are intrinsically different. Therefore, you can not simply interpret the difference as a causal effect. In order to estimate the actual effect of voting on polarisation, voter endogeneity should be eliminated.

One way to do this is using age restrictions on voting. Imagine two individuals of 17 and 18 years old respectively. The 18 year old is able to vote and thus express their support for candidate x, while the 17 year old is not. Assume that two years later the approval ratings of candidate x have fallen on average. Taken cognitive dissonance into account, the 18 year old is expected to see a smaller decrease in approval ratings than the 17 year old simply because of the fact that the 18 year old voted for that candidate two years prior.

Research on the role of cognitive dissonance in political elections has been done in countries such as the United States, Sweden and Canada. Mullainathan and Washington (2009) find that the act of voting leads to polarisation in Presidential Elections in the United States. Along the same line, in Canada McGregor (2013) finds evidence that voting causes a shift in attitudes. On the other hand, Elinder (2012) does not find any effects of voting on political attitudes for both Sweden and the United States. To the best of my knowledge, there is no research in the Netherlands that analyses the role of cognitive dissonance in Parliamentary elections.

Therefore, the aim of this research is to contribute to the existing research about the role of cognitive dissonance in political elections done in the countries mentioned before and pave the way for more studies in the Netherlands related to this subject. It is important to investigate this topic in order to get a better understanding if the existing research in other countries differs from the

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Netherlands. Moreover, if the results that cognitive dissonance plays a role in political elections holds for the Netherlands, it might shed more light to the fact that there is so much polarisation in the Netherlands.

In this research, I use data from the European Social Survey (ESS) to explore whether individuals who voted during several parliamentary elections in the Netherlands feel closer to a political party they voted for than individuals who did not vote. In order to eliminate the voter endogeneity, I use the age restriction on voting as an external factor. I compare two groups: a Non-Eligible group that contains individuals younger than 18 (the minimum age is 15) and an Eligible group with individuals older than 18 (the maximum age is 20). In order to be able to compare these two groups fairly, I use propensity score matching to match individuals who did not vote on a set of demographics (such as interest in politics, satisfaction of the government, income and education) to similar individuals who did vote. Based on the existing research, I expect to find that voting has a positive effect on the attachment individuals feel to the political party they voted for.

This research shows that there is some (albeit not strong) significant evidence that individuals who voted during an election feel closer to a political party than individuals who did not vote. Subsequently, when looking at a smaller age difference between the two groups, the effect is slightly larger. Finally, when I only look at surveys that were held in the same year elections were held, I find a highly significant effect. Individuals who voted during an election feel around 10% closer to a political party than individuals who did not vote.

The rest of this paper is organised as follows: I start by outlining the background of cognitive dissonance in general in order to get a better understanding of the concept. After introducing cognitive dissonance, I narrow it down to the role it has played in political elections. I will also briefly discuss some psychological beliefs about cognitive dissonance in political situations and the political system in the Netherlands. After this I discuss the data obtained from the ESS database. I will then proceed to explain the statistical methods that I use. Subsequently, I will present the results and provide several robustness checks in order to analyse the validity of the results. Finally, I will end with conclusions and provide suggestions for further research.

II. Related literature

Cognitive dissonance

A widely discussed topic is the relationship between choices and preferences. Intuitively, one would assume that preferences will drive actions and choices. However, there has been an ongoing discussion about the direction of the relation between preferences and choices. According to Ariely and Norton (2008), preferences can be influenced by actions. This implies that individuals form their preferences based on their previous actions. An example is an experiment by Festinger and Carlsmith (1959) where participants had to complete a boring task and were paid a certain amount when the task was completed. Subsequently, they were asked to tell other people that they enjoyed the task. In this situation, negative utility (from performing the boring task) is reflected against behaviour which suggests that the task had positive utility (telling other people they enjoyed the task). The results showed that when individuals were paid less, it made them like the task more. This suggests that actions form preferences: when people were not paid enough to lie about the enjoyment of the task, their actions implied that they derived positive utility from completing the task.

Bandura (1989) further confirms that changes in behaviour can come before changes in preferences. This seemingly reversed direction can be explained by the term cognitive dissonance. Festinger (1957) explains cognitive dissonance as the internal need to be consistent. Hence, when people make choices that are inconsistent with their beliefs, they unconsciously alter their beliefs to avoid having inconsistent preferences. Consider an individual x who voted for candidate y during political elections. If candidate y wins the election, and two years after the election approval ratings of candidate y have fallen in general, cognitive dissonance predicts that the decrease in approval ratings of individual x is smaller than of someone who did not vote for candidate y.

According to Festinger, there are three ways in which dissonance can arise: (1) when individuals make decisions; (2) when individuals are presented with new information; (3) when individuals are confronted with situations with little social support. This last situation can be described by the elevator experiment. This is an experiment to research social conformity where a group of people are standing in an elevator and all face the back instead of the doors. People with a need for social conformity will be tempted to also face the back of the elevator. Since dissonance is uncomfortable, individuals will try minimise their exposure to dissonance. Potentials ways of doing this are (1) changing their beliefs (i.e. increasing the attractiveness of the chosen alternative while

decreasing the attractiveness of the alternative not chosen) (2) adding new beliefs (e.g. focusing on similarities between the alternatives) and (3) putting less emphasis on the importance of their beliefs. However, individuals exerting effort to minimise their exposure to dissonance are faced with (mental) costs. Individuals can try to avoid making decisions all together, or avoid situations where they will be presented with new information. In the same way, individuals can try to avoid situations where they are confronted with little social support, such as group decisions.

Cognitive dissonance in political elections

Cognitive dissonance has also found its way towards political elections. As discussed in the introduction, in the context of voting during elections, individuals who voted for a candidate might hold a favourable opinion two years after voting for that candidate, simply because they do not want to experience the feeling of having voted for a bad candidate.

A paper that is extremely relevant to my research is from Mullainathan and Washington (2009), who study voting effects on polarisation. Using data from U.S. elections from 1976 to 1996, they analyse individuals' ratings of the performance of presidents. These ratings are taken two years after every election. They compare young eligible voters (20 and 21 years old)[1] to young ineligible voters (18 and 19 years old)[2]. The authors find that polarisation is almost twice as large for eligible voters compared to ineligible voters. They also analyse whether this effect holds for Senatorial elections. These elections are held during Presidential years or interim election years, where voter turnout is much higher in the Presidential years. The authors again find increased effects of polarisation, where polarisation is around 22% higher during Presidential years compared to interim election years, which further strengthens the hypothesis that cognitive dissonance plays a role.

In order to be able to interpret these results, the authors consider three factors that potentially influenced them. Firstly, the polarisation effects found by the authors might be caused by ageing effects. The authors check for this by comparing different age groups and find some evidence that there is greater polarisation in younger groups than older groups, but the difference is not statistically significant. Hence, they conclude that ageing effects do not influence their results. Secondly, at the time the surveys were conducted, party affiliation was also measured. This could imply that positive feelings about the President led one to report themselves as a member of the President's party, while negative feelings about the President led one to not report themselves as a

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[1] These ratings of Presidential performance were taken two years after the elections, so people who were 20 and 21 at this moment were eligible to vote two years prior.

[2] In the same way, people who were 18 and 19 at this moment were not eligible to vote two years prior.

member of the President's party. The authors control for this potential bias by using hypothetical votes in prior elections and do not find contradicting results. Finally, confirmation bias could lead to an overestimation of the results. Lord et al. (1979) find significant evidence that confirmation bias can lead to an increase in attitude polarisation. The underlying mechanism is that people who vote might be more inclined to look for information about the elections and interpret certain information in a more favourable way than they objectively should. The authors test for this by examining knowledge and interest of both eligible and ineligible voters and do not find any significant differences. Lazarsfeld et al. (1968) also confirm this type of confirmation bias during US presidential elections of 1940, where voters mainly exposed themselves to favourable information about their preferred candidate. Therefore, mass media cannot significantly change opinions, since individuals tend to only look at information that is favourable for their preferred candidate.

Based on the paper by Mullainathan and Washington, I expect to find that voting has a positive effect on how close individuals feel to political parties in the Netherlands. Two other important studies that also analyse the role of cognitive dissonance in political elections are done by Elinder (2012) en McGregor (2013). Elinder analyses the relationship between voting and political attitudes with measures one month prior to the elections, which in general should be quite similar to the actual voting behaviour. Just like Mullainathan and Washington, Elinder uses the age restriction as exogenous difference. Using data from Swedish Election Studies and the American National Election Studies, Elinder does not find any effects of voting on political attitudes for both Sweden and the United States. According to Elinder, at the time of new elections previous voting behavior has no influence on political attitudes anymore. McGregor studies the effect of cognitive dissonance on attitude changes towards political parties in Canada. The main distinction in this research is that opposed to the US, Canada has many political parties. This is important to note because cognitive dissonance can be affected by the number of political parties participating in an election. When there are only two candidates, positive feelings about one candidate often directly imply negative feelings towards the other candidate. According to Richardson (1991), this party dynamic is not as strong when there are many political parties. Furthermore, in Canada people are not extremely attached to one political party (there is also little attachment to political parties in general), so if the party ratings are very volatile, this could imply that cognitive dissonance plays a role (Leduc et al., 1984). McGregor finds evidence that voting causes a shift in attitudes. However, there is no evidence that this relationship holds for the long term. The paper by Elinder contradicts the findings of Mullainathan, while the paper by McGregor confirms that voting causes a shift in attitudes (although there is no evidence for the long term). The different results from these paper

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could potentially be explained by the different political systems in the United States, Sweden and Canada. This makes it even more interesting to compare the results for the Netherlands to these countries.

Psychological beliefs

It is important to briefly discuss some psychological motives that could influence the results discussed from the existing research. For instance, individuals' expectations about elections could affect the results. Regan and Kilduff (1988) analyse the effect of voting on people's expectation of their candidate winning the next election. Just like Granberg and Brent (1983), who find this effect occurring with a ratio of roughly 4:1, people that voted believe that the candidate they voted for will win the next election. This effect needs to be interpreted with caution, because it is very likely that the results are biased. People generally associate themselves with other people who have similar beliefs. Therefore, according to Tversky and Kahneman (1973), the results are overestimated since it is highly likely that the projected results are favoured to a preferred candidate.

Another important psychological motive that may play a role is the fact that there is a chance that an individual's favoured candidate may not be the favoured candidate of the majority of voters. Regan and Kilduff further examine this psychological motive which they call post decision dissonance reduction. Evidence for post decision dissonance reduction has been found in two field experiments. In a situation where gamblers place bets at horse tracks, Knox and Inkster (1968) found significant evidence that after betting, subjects thought it more likely that the horse they bet on would win the race. Related to political decision making, Frenkel and Doob (1976) also found statistically significant (albeit weak) effects in a situation where Canadian voters were asked to consider qualifications of their favoured candidate and their chances of winning during the election.

Regan and Kilduff study post decision dissonance reduction with respect to the 1984 US presidential elections. By comparing individuals' opinions immediately before and immediately after voting, they measure whether individuals believe the candidate they voted for has a higher chance of winning than before voting. They include questions to control for the effect the act of voting may have on the general morale of individuals. The authors find results that confirm post decision dissonance reduction. They find statistically significant evidence that confirms individuals believe the candidate they just voted for has a higher chance of winning than they believed immediately before voting. The authors note that the effect of the act of voting is limited to the individual's belief of the chance that their preferred candidate will win. They do not find any

significant effects on the individual generally agreeing more with their preferred candidate after voting.

Political system of the Netherlands

In the Netherlands, parliamentary elections are normally held every four years. There are 150 seats to be divided between the political parties. If a political party receives a majority of the seats (76 seats or more), that party will form the government. However, one party receiving a majority of the seats by itself is very rare. Therefore, a coalition has to be formed between multiple parties. The political party with the most votes normally has the initiative to form this coalition. This party will try to find other similar parties to join the coalition. If this succeeds, there will be a new coalition. Sometimes, when it is not possible to form a coalition or the current coalition has to step down, new elections are held. For this paper, the relevant parliamentary elections that will be taken into account are the elections of 2002, 2003, 2006, 2010, 2012 and 2017.

Most existing literature that has studied the role of cognitive dissonance in political elections was focused on the United States. In order to gain greater confidence in the conclusions drawn from the existing literature, it is important to keep in mind that there are significant differences between the political systems in the United States and the Netherlands. While in the United States there are two candidates in the Presidential Elections (a Democrat or a Republican)[3], the Netherlands has a parliamentary democracy with various larger, middle and smaller sized political parties. Given that there are so many political parties in the Netherlands, the differences between them will also be smaller than the differences between Democrats and Republicans. Therefore, it is to be expected that there will be less polarisation caused by voting than in the United States, where there are two parties that are significantly different. For my research I would then expect to find that voting has a smaller effect on feelings towards a political party in the Netherlands than in the United States.

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[3] There are also independent candidates at U.S. Presidential Elections, but they receive so few votes that I will not focus on them in this comparison.

III. Data

Data is retrieved from the European Social Survey (ESS) database. This is a survey that has been carried out every two years since 2002. 38 countries in Europe have at least participated once and around 20 countries have participated consistently since it started. Questions are grouped into twenty themes. The themes *media and social trust*, p*olitics*, s*ubjective well-being*, g*ender and household*, s*ocial demographics* and *human values* have appeared in all surveys. The data is collected through face to face interviews in all countries. Random sampling methods is used in order to get a representative sample of the population. The minimum age is 15 and there is no maximum age. The following variables obtained from the ESS database are used for the analysis of this paper: *news*, *interest in politics*, *trust in the parliament*, *trust in politicians*, *voted*, *party voted*, *close*, *age*, *left-right scale*, *satisfaction economy*, *satisfaction government*, *satisfaction democracy*, *happy*, *religious*, *country born*, *household members*, *gender*, *education* and *income*. The table below provides an overview of the variables by stating the questions that were asked during the survey and the answer scales.

Table 1: ESS survey questions

Variable	Question asked	Answer scale
News	On any given day, how much time do you spend watching, reading or listening to news about politics or current affairs?	Provide your answer in minutes and/or hours
Interest in politics	How interested are you in politics?	Very interested (1), quite interested (2), not interested (3), not at all interested (4)
Trust in parliament	Using this card, please tell me on a score of 0-10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly, trust in the country's parliament?	0 (no trust at all) - 10 (complete trust)
Trust in politicians	How much trust do you have in politicians in the Netherlands?	0 (no trust at all) - 10 (complete trust)
Voted	Nowadays some people do not vote during elections for some reason. Did you vote during the last parliamentary elections?	Yes; no; not eligible
Party voted	If you voted during the last parliamentary elections, which party did you vote for?	List your answer

Close	Is there a political party you feel closer to than the other political parties? If so, which one? How close do you feel to this party?	Not at all close (1); not close (2); quite close (3); very close (4)
Age	What is your age?	Provide date of birth
Left-right scale	Two terms in politics are 'left' and 'right'. On the scale from left to right, where would you position yourself?	0 (most left) - 10 (most right)
Satisfaction economy	How satisfied are you with the current state of the economy in the Netherlands?	0 (very unsatisfied) - 10 (very satisfied)
Satisfaction government	How satisfied are you with the current Dutch government?	0 (very unsatisfied) - 10 (very satisfied)
Satisfaction democracy	How satisfied are you with the way democracy works in the Netherlands?	0 (very unsatisfied) - 10 (very satisfied)
Happy	In general, how happy are you with your life?	0 (very unsatisfied) - 10 (very satisfied)
Religious	Irregardless of whether you consider yourself to be part of a religion or religious denomination, how religious would you say you are?	0 (not at all religious) - 10 (very religious)
Country born	Were you born in the Netherlands? If not, in which country were you born?	Yes; if no list country
Household members	How many people are in your household?	List your answer
Gender	What is your gender?	List your answer
Education	What is the highest education that you have successfully completed?	List your answer
Income	Which of the following answers matches your feeling about the income of your household best?	Living comfortably on present income; coping on present income; difficult on present income; very difficult on present income

The main variable of interest in this research is how close people feel to a political party. This is represented by the variable *close*. Close answers the question "On a scale of 1 - 4, how close do you feel to this particular party?" where 1 equals not at all close, 2 equals not close, 3 equals quite close and 4 equals very close. This question is only asked to people who answered the previous question "Is there a particular political party you feel closer to than other parties?" (followed by the question "Which party?"). It is important to note that this is ordinal data. With ordinal data, variables have

ordered categories, but the distances between the different categories are unknown. This means that people who answered *close* with 2 do not necessarily feel twice as close to a political party than people who answered *close* with 1.

Voted is a dummy variable that shows whether people voted during elections or not. People who were eligible to vote but did not vote were eliminated from the data, so *voted* only represents people who were ineligible to vote and people who were eligible to vote and actually voted. It takes a value of 1 when people voted during the elections and it takes a value of 0 when people were ineligible to vote during elections. The other variables are used to control for underlying factors and to eliminate biases.

News describes how many minutes a respondent watched, read and listened to political news. There have been nine rounds of the ESS (once every two years, starting in 2002). For the first five rounds of the ESS, there were three separate questions asking how many minutes a respondent watched news about politics on the television, read the newspaper about politics and listened to the radio about politics. For round six and seven of the ESS, respondents were only asked how many minutes they watched news about politics on the television. In order to be able to use this data as a single variable, the data had to be transformed. For the first five rounds, I run a linear regression with total time as dependent variable and tv as independent variable. Using the coefficient of this regression, I calculate the total time a respondent watched the news about politics, read newspapers about politics and listened to the radio about politics for respondents of round six and seven. The results are shown in Appendix A. In round eight and nine respondents were asked to state how many minutes they watched, read and listened to political news in total. So in every round the total number of minutes someone watched, read and listened to political news is used as a variable.

The variable *interest in politics* describes how interested the respondent is in politics. This variable is measured on a scale from 1 - 4, where a higher number represents more interest in politics. Just like *close,* this is ordinal data, so the differences between the categories are unknown. The variables *trust in parliament* and *trust in politicians* refer to how much respondents trust the country's parliament and politicians respectively. Both variables are measured on a scale from 0 - 10, where a higher number implies a higher trust.

The variable *party voted* lists the party respondents voted for if voted equals 1. *Left-right scale* describes where a respondent would place their self on the political scale from left to right. It is measured on a scale from 0 - 10, where 0 equals the most left position and 10 the most right position on the scale. *Age* represents the age of the respondent, which has a minimum of 15 and no

maximum (based on the restrictions from the ESS)[4]. *Gender* takes on a value of 0 for females and 1 for males. *Country born* describes whether the respondent was born in the Netherlands. It takes on 0 if this is the case and 1 otherwise. *Satisfaction economy*, s*atisfaction government* and s*atisfaction democracy* refer to the satisfaction of the present state of the economy, the satisfaction of the national government and the satisfaction of how democracy works respectively. All three variables are measured on a scale of 0 - 10, where a higher number implies a higher satisfaction. *Happy* describes how happy respondents felt about their life. It is measured on a scale of 0 - 10, where a higher number implies a higher happiness.

Religious describes how religious respondents are. It is measured on a scale of 0 - 10, where a higher number implies that a respondent is more religious. *Household members* describes how many people there are in the household of the respondent. *Education* lists the highest education the respondent has completed so far. However, the answers respondents can give differ over the different rounds of the ESS. Over all rounds there are around 18 categories from which respondents can list the highest education that they have completed. In order to be able to more clearly interpret the effect of receiving more education on how close people feel to a political party, I combine and relabel the different categories end end up with eight different categories (1 up until 8). It is important to note that the eight categories differ in level but are not ranked, so a higher number of education does not necessarily mean a higher level of education. The eight categories are listed in Figure 1 later.

The ESS database contains a question on which category their household belongs to based on their income. However, a significant amount of respondents used for this analysis are underage and live with their family, and as one might expect are not completely aware of the exact income of their parents. Many respondents answered the question with "do not know". In order to use a variable on household income with more meaningful data, I use another variable where respondents are asked how they feel about their households income. Only very few people answered this question with "do not know", so this variable is more likely to be meaningful. This is represented by the variable *income*. It is measured on a scale of 1 - 4, where 1 equals 'very difficult on present income', 2 equals 'difficult on present income', 3 equals 'coping on present income' and 4 equals 'living comfortably on present income'.

Furthermore, polarisation might also increase as a result of voting for winning or losing parties. Beasly and Joslyn (2001) find evidence that the effect of voting increases the evaluative

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[4] The maximum age I use is 20 at the time of the last parliamentary election.

distance between candidates. More specifically, people who voted for the winning candidate were less likely to decrease the evaluative distance than people who voted for the losing candidate. In this analysis, political parties are placed in two categories: coalition parties or opposition parties. Coalition parties are political parties that were part of the coalition and therefore mainly responsible for ruling. Opposition parties are political parties that were part of the opposition, and thus were not part of the government. It could be the case that people who have been voting for political parties that have been in the coalition ('winning' parties) feel more attachment to the party they voted for because the parties have been successful. In contrast, cognitive dissonance might predict that people who have been voting for political parties that have been in the opposition ('losing' parties) feel less attachment to the party they voted for because the parties have not been successful. Therefore, they do not want to face the fact that they voted for an unsuccessful political party. I created a variable *coalition* which takes on 1 if the party people voted for is in the coalition during the previous cabinet, and it takes on 0 if the party people voted for is in the opposition during the previous election. Finally, *region* is a variable that describes in which region the respondent lives, which can take on 1 through 12 where every number stands for a province of the Netherlands.

IV. Methodology

Just like Mullainathan and Washington (2009) I will use the age restriction to see whether polarisation increases because of cognitive dissonance. Data from the European Social Survey (ESS) database is used. One problem with the ESS database is that it does not contain panel data. This means that it is not possible to follow the same individuals through multiple rounds. In order to overcome this problem, respondents will be divided into two groups: a Non-Eligible group and an Eligible group. Preferably, I compare people who turn 18 the day after the election to people who turn 18 the day before the election. This way, the age difference will not lead to a bias in the results. Because of the limited data set, I expand the age difference. Respondents who are 15, 16 or 17 years old at the time of an election are considered to be ineligible voters. In order to avoid creating large age differences, I will only use respondents who are 18, 19 or 20 years old at the time of an election as eligible voters. If there would be a large age difference between the group of ineligible voters and the group of eligible voters, it could be likely that the difference in results would be driven by this age difference. One can expect significant differences between teenagers and people who have been working for over twenty years (e.g. teenagers have received less education, make less money, might be less interested in topics such as politics or economics). In order to avoid this bias due to the large age difference, I only use respondents who are 18, 19 or 20 years old at the time of an election as

eligible voters. This way, there should not be such a significant difference between the two groups caused by the age difference.

In order to correctly match the data of the survey to the elections, some adjustments had to be made. This was necessary since not all surveys were held in the year that elections were held. For the elections of 2002 and 2010, only data of the corresponding years were used. For the elections of 2003, data from the survey of 2004 was used. People younger than 19 years old in 2004 were not eligible to vote during the elections in 2003, so the data was slightly transformed. In the same way, people who who were 19, 20 or 21 years old in 2004 fall in the right category for the elections of 2003. A similar approach was used for the elections of 2006, 2012 and 2017.

The main variable of interest is the variable *close*. In first instance, respondents are asked if they feel more close to a particular party than any other political parties. If so, they are asked to name that party. Then, respondents are asked how close they feel to that particular party. This is represented by the variable *close*. Respondents can answer the question "how close do you feel to that political party?" with 1, 2, 3 or 4 where 1 equals not at all close, 2 equals not close, 3 equals quite close and 4 equals very close. This results in 214 observations of ineligible voters and 130 observations of eligible voters, over six elections.

In this paper I analyse whether people who voted during the last election feel more close towards a particular political party than people who were not eligible to vote during the last election. This is possible when comparing two groups that are the same except for the fact that one group voted during an election while the other group did not vote. However, these two groups could differ because of various underlying variables such as different levels of education, different interest in politics, different trust in politicians or different income levels. This could lead to biased results. For example, if in the group of eligible voters all people tend to be more interested in politics and have more trust in politicians than the people in the group of ineligible voters, eligible people might feel closer to a political party than ineligible people. While it would seem that voting leads to people feeling more close to a political party, the effect is actually caused by these underlying factors.

In order to confirm this, I will use the Kolmogorov-Smirnov test to see if there are any significant differences between the two groups. The Kolmogorov-Smirnov test can be used to compare two samples. It tests whether the samples are drawn from the same distribution, and thus if there are any significant differences between the two groups. I use the Kolmogorov-Smirnov test (rather than e.g. the Mann-Whitney U test) because the advantage of this test is that the distribution of the statistic does not depend on the cumulative distribution function that is tested. However, as

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mentioned earlier, I am expecting to find significant differences between the Eligible and the Non-Eligible group. Therefore, I will use Propensity Score Matching to estimate the average treatment effect of voting on how close respondents feel to a political party. Propensity score matching estimates the treatment effect by accounting for the other variables and thus predicting receiving the treatment. It is important to note that biases can arise because the treatment effect is caused by underlying factors which predict the treatment instead of the treatment itself. For example, people who have received more education and make more money might vote more than people who have received less education and make less money. Propensity score matching eliminates this bias by matching subjects on observables to create a Non-Eligible group. This way, the group receiving treatment (Eligible group) should be comparable to the group receiving no treatment (Non-Eligible group) based on the control variables.

In this analysis, people from the Non-Eligible group will be matched to people from the Eligible group using nearest neighbour matching. The treatment is whether people were eligible and thus voted during the last election. Matching is based on the control variables discussed earlier, excluding age. So, someone who was not eligible to vote will be matched to their nearest neighbour based on variables such as interest in politics and satisfaction with the national government. This way, the only real difference should be the treatment, which is whether someone voted during the last election or not. Finally, I use a normal ordered regression to find the treatment effect (i.e. the effect of voting on how close an individual feels to a political party). Based on the existing research, the null hypothesis is that voting has a positive effect on how close an individual feels to a political party. The alternate hypothesis is that voting does not have an effect on how close an individual feels to a political party.

V. Results

Table 2 shows the descriptive statistics for all non-categorical variables. The means, standard deviations, minimum, median, maximum and number of observations are shown for both ineligible (voted equals no) and eligible individuals (voted equals yes).

Table 2: descriptive statistics

	Voted	Mean	SD	Min	Median	Max	N
Close	No	2.98	0.45	2	3	4	214
Close	Yes	3.02	0.54	1	3	4	130
News	No	53.49	43.74	0	45	270	214
News	Yes	65.16	69.35	0	60	664	130
Interest in politics	No	2.62	0.71	1	3	4	214
Interest in politics	Yes	2.87	0.69	1	3	4	130
Trust in parliament	No	6.00	1.73	0	6	10	214
Trust in parliament	Yes	5.84	1.86	0	6	10	130
Trust in politicians	No	5.70	1.63	0	6	9	214
Trust in politicians	Yes	5.57	1.63	0	6	9	130
Age	No	17.57	1.53	15	17	22	214
Age	Yes	20.86	1.43	18	21	24	130
Left-right scale	No	5.11	2.36	0	5	10	214
Left-right scale	Yes	5.20	2.41	0	5	10	130
Satisfaction economy	No	5.87	1.91	0	6	9	214
Satisfaction economy	Yes	5.84	1.76	0	6	9	130
Satisfaction government	No	5.64	1.83	0	6	10	214
Satisfaction government	Yes	5.27	1.76	1	6	8	130
Satisfaction democracy	No	6.60	1.80	0	7	10	214
Satisfaction democracy	Yes	6.32	1.75	1	7	10	130
Happy	No	8.03	1.09	4	8	10	214
Happy	Yes	8.00	1.27	0	8	10	130
Religious	No	4.06	3.29	0	4	10	214
Religious	Yes	3.77	3.26	0	3	10	130
Household members	No	4.06	1.56	1	4	12	214
Household members	Yes	3.03	1.69	0	3	10	130
Income	No	3.52	0.71	1	4	4	214
Income	Yes	3.41	0.66	1	3	4	130

As can be seen in Table 2, there are various differences in the means between the Non-Eligible group and the Eligible group. People in the Eligible group listen to, read, and watch more news and they have more interest in politics than the Non-Eligible group. It is interesting to note that people in the Non-Eligible group have more trust in the parliament and in politicians, and are also more satisfied with the government and the democracy than people in the Eligible group. For further research it would be interesting to analyse whether voting has a negative impact on these factors.

Propensity score matching should eliminate these differences. A table with the means of the Non-Eligible group and Eligible group after matching is shown in Table 4. It is important to take a closer look at the minimum and maximum age of both the Non-Eligible group and Eligible group. The minimum age of the Non-Eligible group is 15 and the maximum age is 22. This seems contradictory with the voting age, but as explained earlier this is because various surveys ask whether respondents voted for the parliamentary elections a couple years prior to the year the survey was held. Respondents who were 22 were not eligible to vote at the respective parliamentary election the survey asks about. In the same way, the minimum age of the Eligible group is 18 and the maximum age is 24. When controlling for how old the respondents were at the time of the relevant election, the maximum age is 20.

Figure 1

Distribution of education by voted
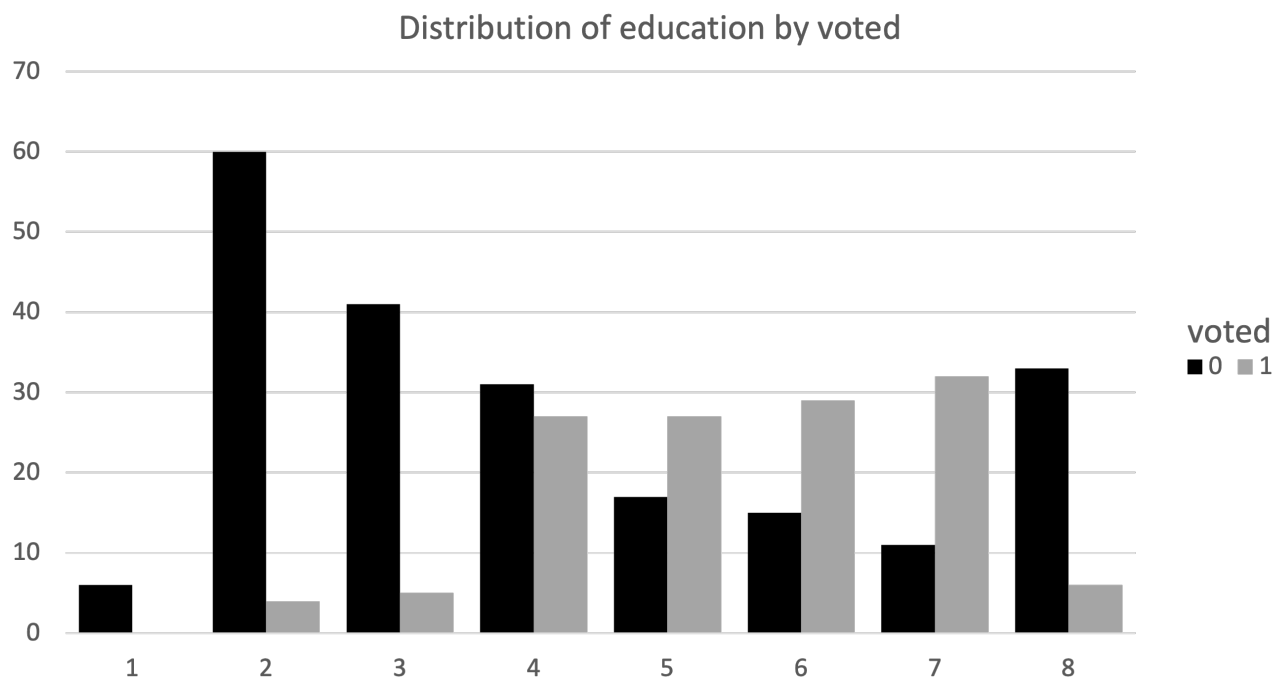
Figures 1 and 2 show the distribution of the categorical variables *education*[5] and *region* respectively. These variables are shown separately and not in Table 2 because they are categorical variables. Both variables can take on values that cannot easily be meaningfully ordered. Therefore, there is no use to look at the minimum, medium and maximum. Figure 1 shows the distribution for *education*. There are eight different categories in which respondents have been placed. As can be seen, there are quite some differences between the two groups, especially for categories 2 and 3. Figure 2 shows the distribution for *region*, which takes on a value from 1 through 12 which stand for the different provinces in the Netherlands.[6] Most categories are fairly evenly distributed, but there are some larger differences in category 5, 8 and 9. These differences give a clear visual representation of why you cannot simply compare these two groups directly.

Figure 2

Distribution of region by voted

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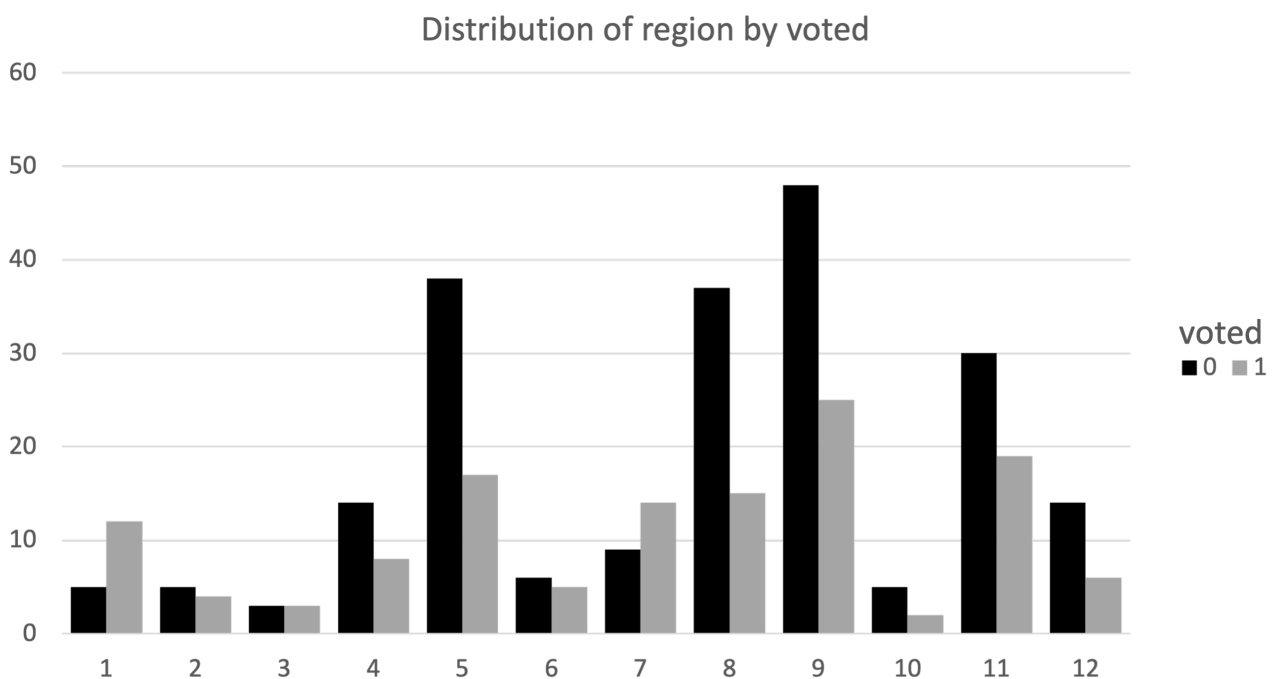
[5] 1 = did not finish primary school, 2 = finished primary school, 3 = finished the lower levels of high school, 4 = finished the medium levels of high school, 5 = finished the highest level of high school, 6 = finished MBO, 7 = finished one or more years at university, 8 = all other categories

[6] 1 = Groningen, 2 = Friesland, 3 = Drenthe, 4 = Overijssel, 5 = Gelderland, 6 = Flevoland, 7 = Utrecht, 8 = Noord-Holland, 9 = Zuid-Holland, 10 = Zeeland, 11 = Noord-Brabant, 12 = Limburg.

Table 3 shows the results of the Kolmogorov-Smirnov tests. Most differences resulting from the Kolmogorov-Smirnov tests seem to be driven by the age differences between the Non-Eligible group and the Eligible group. There are significant differences between the Non-Eligible group and the Eligible group for the variables *news*, *interest in politics*, *household members*, *education* and *income*. Ineligible people listen to, read and watch significantly less news than eligible people. A study by the American Press Institute (2014) confirms this result for individuals in the United States. They find that younger adults are significantly less likely to listen to, read and watch news than older adults.

Table 3: Kolmorogov-Smirnov tests

	Difference
News	0.1613**
Interest in politics	0.1604**
Trust in parliament	0.0699
Trust in politicians	0.0723
Left-right scale	0.0781
Satisfaction economy	0.0332
Satisfaction government	0.1018
Satisfaction democracy	0.0781
Happy	0.0377
Religious	0.0702
Country born	0.0165
Household members	0.3156***
Gender	0.0036
Education	0.4308***
Income	0.1416*
Region	0.1108

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Ineligible people are also significantly less interested in politics than eligible people. Often, the lack of interest in politics decreases with age (e.g. Strate et al. (1989); Electoral Commission (2002), and Fieldhouse et al. (2007)). More interest in politics could imply that the people who voted will also feel closer to a political party than people who did not vote (and have less interest in politics). There is also a significant difference in the members of a household between the Non-Eligible group and the Eligible group. Ineligible people have significantly more members in their household. This

seems logical, as people who are eligible are older and move out of their parents' house. Furthermore, there is a significant difference in the highest education received between the Non-Eligible group and the Eligible group. Ineligible people have received significantly less education. This is also age driven, since younger people simply have received less education than older people. Finally, there is a significant difference in income between the Non-Eligible group and the Eligible group. Ineligible people felt significantly more comfortable about the present income of their household than eligible people. This seems intuitive and age driven as well, since more eligible people live on their own and do not benefit as much from the income of their parents.

It is important to note these differences and the potential biases that could arise because of these underlying differences. However, the use of propensity score matching should eliminate these. A normal ordered logit regression will yield biased results, because one cannot simply compare two different groups. On the other hand, propensity score matching minimises this bias by matching people from the Non-Eligible group to the Eligible group, based on similar control variables.

Furthermore, I run correlation tests to check for multicollinearity. The results of the correlation tests can be found in Appendix B. According to Vatcheva et al. (2016), there is strong correlation between two variables when the correlation is 0.7 or higher. In this case, it is better to eliminate one variable in order to more clearly see the actual effects of the variables of interest. The correlation tests result in one pair of variables that has a score higher than 0.7. Between *trust in politicians* and *trust in parliament* the correlation is 0.72. This seems logical, as people might not perceive a big difference in the trust in politicians or the trust in the parliament. Since the trust in politicians is a broader variable, I will not use *trust in parliament* in the rest of the analysis.

Just like Mullainathan and Washington (2009) I assume that the age difference does not play a role. Therefore, I eliminate *age* from the rest of the analysis. Since the age difference in this analysis is bigger than in the paper by Mullainathan and Washington (five year difference compared to a three year difference), I will also run the analysis with a smaller age difference to check the sensitivity of the results. Now, I run the propensity score matching. The regression looks as follow:

$$CLOSEit = \beta1 * Voted + \varepsilon it \qquad\qquad (1)$$

where β1*voted is the average treatment effect of having voted at an election. All the relevant confounders are included in the error term. Before looking at the results, it is important to see whether the propensity score matching was done properly. Figure 3 and 4 show the propensity scores before and after propensity score matching respectively.
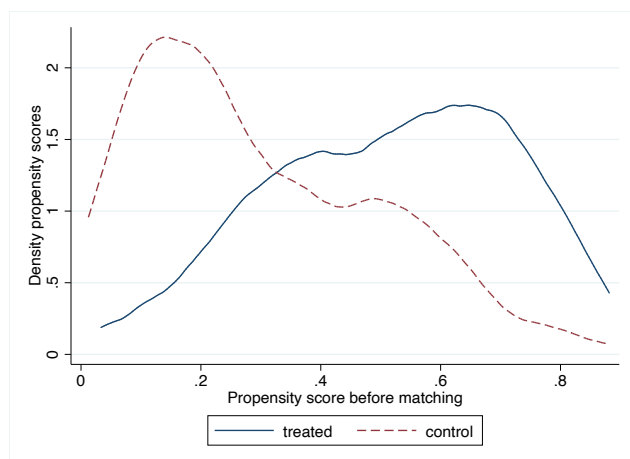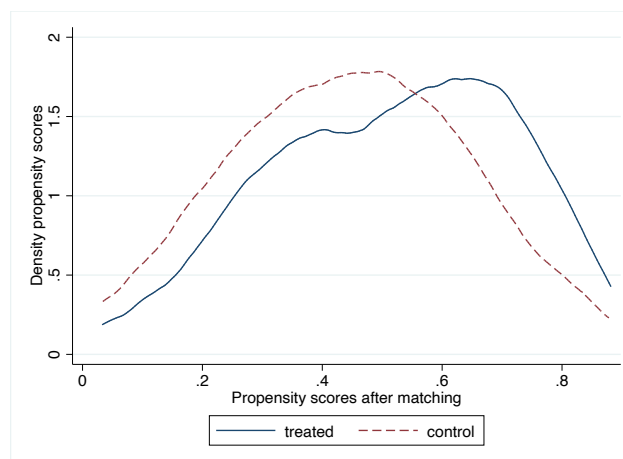
Figure 3: propensity scores before matching   Figure 4: propensity scores after matching

As can be seen in Figure 3, the propensity scores of the Non-Eligible group and Eligible group are very different. However, Figure 4 shows that the propensity scores of the Non-Eligible group and Eligible group after matching are much closer and have quite the similar distribution. In order to really see whether the propensity score matching was done properly, I conduct a t-test to see whether there are differences between the Non-Eligible group and the Eligible group after the matching process.

Table 4: means after matching

	Eligible group	Non-Eligible group	% bias	T-test
News	65.16	62.45	4.7	0.36
Interest in politics	2.87	2.88	-2.2	-0.18
Trust in politicians	5.57	5.73	-9.9	-0.80
Left-right scale	5.20	5.05	6.4	0.49
Satisfaction economy	5.84	5.75	5.0	0.41
Satisfaction government	5.27	5.29	-1.3	-0.11
Satisfaction democracy	6.32	6.4	-4.3	-0.37
Happy	8.00	7.93	5.9	0.47
Religious	3.77	3.83	-1.9	-0.15
Household members	3.03	3.33	-18.4	-1.63
Income	3.41	3.46	-7.9	-0.61

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4 shows the means of the variables of the Eligible group and Non-Eligible group after propensity score matching. There are some differences between the Eligible group and the Non-Eligible group. The Eligible group still listens to, reads and watches more news than the Non-Eligible group. However, the difference is a lot smaller than before the propensity score matching. Overall, the means of the Eligible group and Non-Eligible group have converged after the

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propensity score matching. Table 4 also shows the bias that still exists after the matching process is completed. Finally, it shows the result of a t-test to analyse whether there is a significant difference between the Non-Eligible group and the Eligible group. As can be seen in the last column, there are no significant differences between the Non-Eligible group and the Eligible group after matching. This means that the Non-Eligible group can now be compared to the Eligible group, because there are no more significant intrinsic differences between the two groups. The propensity score matching was therefore done properly.

Table 5: regression with full sample

	Coefficient
Voted	0.096* (0.055)
N	344

Standard error in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5 shows the result of the regression with the full sample. As Table 5 shows, there is a significant treatment effect given the significance level of alpha at 0.1. Individuals who voted during an election feel significantly closer to a political party than people who were ineligible to vote at the time of an election. The coefficient is 0.096. After propensity score matching, the average closeness score for the Non-Eligible group and the Eligible group is 3.02. This means that with an average treatment effect of 0.096, individuals who voted feel on average 3.18% closer to a political party than individuals who did not vote.

This result follows most of the existing literature which finds that voting leads to more polarisation. Three caveats are important to note. Firstly, the dependent variable of interest in this analysis describes how close a respondent feels to the political party they voted for. In most of the existing literature, instead of asking how close respondents feel to the political party they voted for, respondents are asked to list their approval ratings of a political party or candidate they voted for. It is difficult to say that one of the two is a better measure. In order to be able to distinguish between these differences, research should be done about the meaning of the words and how people interpret them. For this paper, I assume that it should not lead to a difference in the results.

Furthermore, the variable *close* has quite a limited range of potential answers that a respondent can give. There are only four answers ranging from 'not at all close' to 'not close', 'quite close' and 'very close'. A very large majority of respondents answered that they felt 'quite close' to the political party they voted for (78.2%). In contrast, only 0.58% answered that they felt

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'not at all close' to the political party they voted for, 10.46% answered that they felt 'not close' to the political party they voted for and 10.75% answered that they felt 'very close' to the political party they voted for. The results might have been different if there would be a wider answer scale. With a wider scale, it is likely that there would be more diversity between the answers. With more diversity between the answers, the average treatment affect could be larger. Further research could indicate if this is the case.

Finally, the difference in the political system of (for example) the United States and the Netherlands can play a role in finding significant effects. In the United States, there are only two candidates people can vote for during a presidential election. Meanwhile, in the Netherlands, there are over twenty political parties people can vote for. Since people in the United States can only choose between two candidates, it is quite likely that there is more polarisation and larger differences between the two candidates. Meanwhile, in the Netherlands, there are so many different parties that their differences are smaller. Therefore, it is very likely that there is less polarisation and the effect of voting is not significant. This is similar to Canada and is confirmed by the paper by McGregor (2013) who found that there is no long term evidence that voting causes a shift in attitudes.

VI. Robustness checks

Smaller age difference

A major assumption in the previous analysis is that the age difference does not play any role. Preferably, one would have a dataset with a large number of respondents that have an age a few days over and under voting age, such that people with a negligible age difference could be directly compared. Mullainathan and Washington (2009) compare 16 and 17 year olds to 18 and 19 year olds. In the previous analysis, I compared 15, 16 and 17 year olds to 18, 19 and 20 years old. However, a five year age gap could have affect the results. For example, people who are 15 might not have taken an interest yet in politics compared to 20 year olds. The change in potential differences can be decreased by reducing the age gap. In order to check the sensitivity of the results, I now limit the age gap and only compare 17 year olds to 18 year olds. This was not done in first instance because it reduces the number of respondents to 113.

The same tests will be run using the smaller data set. This is done to account for the possibility that the people that are removed from the original data set caused the difference in characteristics between the Non-Eligible group and the Eligible group.

Figure 5 and Figure 6 show the propensity scores for the Non-Eligible group and the Eligible group before and after matching respectively. The propensity scores of the Non-Eligible group and the Eligible group before matching follow a similar pattern, but are skewed. The propensity scores of the Non-Eligible group and the Eligible group after matching are very similar, and follow almost exactly the same pattern. In order to really see whether the propensity score matching was done properly, I conduct a t-test to see whether there are differences between the Non-Eligible group and the Eligible group after the matching process.

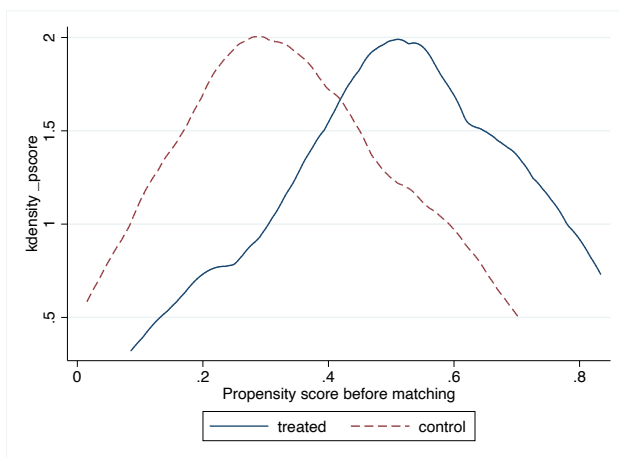Figure 5: propensity scores before matching

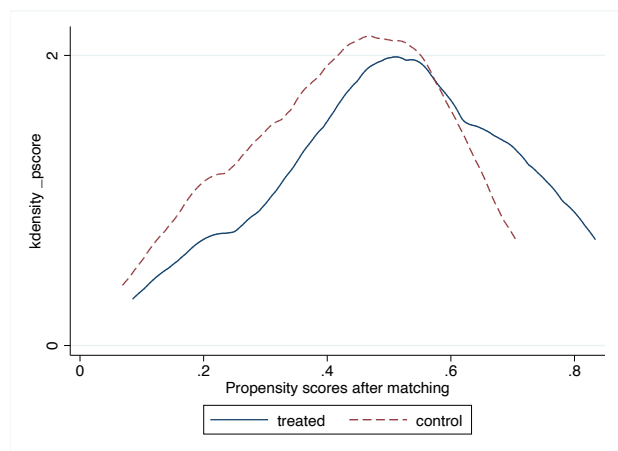Figure 6: propensity scores after matching

Table 6 shows the means of the Non-Eligible group and the Eligible group after the matching process. It is interesting to note that the Non-Eligible group listens to, reads and watches more news than the Eligible group. Furthermore, the difference between the two groups is larger now than before the propensity score matching for the variables trust in politicians, left-right scale, satisfaction economy, satisfaction government, happy and religious. The last column in Table 6 shows the results of a t-test to analyse whether there is a significant difference between the Non-Eligible group and the Eligible group. Since the differences between several variables are now larger than before the matching process, it could be expected to find significant differences. However, for all variables except religious there are no significant differences. For the variable religious, there is a significant difference between the two groups at a significant level of alpha at 0.1 In order to control for this, I run the test twice. Once with the variable *religious* included, once with it excluded.

Table 6: means after propensity score matching

	Eligible group	Non-Eligible group	% bias	T-test
News	69.31	71.81	-4.8	-0.22
Interest in politics	2.85	2.85	0.0	-0.00
Trust in politicians	5.63	5.96	-18.8	-1.09
Left-right scale	5.41	4.96	19.3	0.86
Satisfaction economy	5.46	6.02	-28.5	-1.57
Satisfaction government	4.96	5.15	-10.7	-0.57
Satisfaction democracy	6.28	6.30	-1.2	-0.07
Happy	7.96	7.70	18.2	0.90
Religious	3.04	2.02	33.6	1.72*
Household members	3.26	3.37	-6.2	-0.37
Income	3.48	3.54	-9.4	-0.43

* p<0.10, ** p<0.05, *** p<0.01

Table 7 shows the result of the regression with the smaller age difference. As table 7 shows, there is a significant treatment effect given the significance level of alpha at 0.1. After propensity score matching, the variable *close* is 2.98 for the matched Non-Eligible group and 3.07 for the Eligible group. The coefficient is 0.142. This implies that people who voted feel on average 4,6% closer to a political party than people who did not vote. The treatment effect is still small, although the effect is larger (around 60%) than in the previous analysis. The implication is that a smaller age difference results in higher differences in people's closeness to a political party and thus more polarisation. Finally, the result does not change when I do not include the variable *religious* in the regression.

Table 7: regression with smaller age difference

	Coefficient
Voted	0.142* (0.078)
N	113

Standard error in parentheses, * p < 0.10, ** p < 0.05, *** p < 0.01

Same year survey as election

Finally, it is important to realise that not all surveys were held in the same year that elections were held. For example, the surveys of 2004 and 2006 asked people whether they voted at the elections in 2003. This means that people are asked how close they felt to political parties one year and three years after the relevant election. Their attitudes could have significantly changed between the election and the time that the survey was held. In order to control for this potential difference, I will run another test. I will only keep observations from surveys that are held in the same year the elections are held. This means that only surveys from 2002, 2010 and 2012 will be kept for this analysis. This results in a small data set of 83 observations. Just like the analysis with the smaller age difference, I will run the same tests to account for the possibility that the people that are removed from the original data set caused the difference in characteristics between the Non-Eligible group and the Eligible group. I will not limit the age difference since that will result in a data set of only 30 observations.

Figure 7 and 8 show the propensity scores for the Non-Eligible group and the Eligible group both before and after the matching process. Just like in the previous two scenarios, the propensity scores of the Non-Eligible group and Eligible group after matching are similar, thus implying that the matching process was done properly. In order to statistically see whether the propensity score matching was done properly, I conduct a t-test to see whether there are differences between the Non-Eligible group and the Eligible group after the matching process.
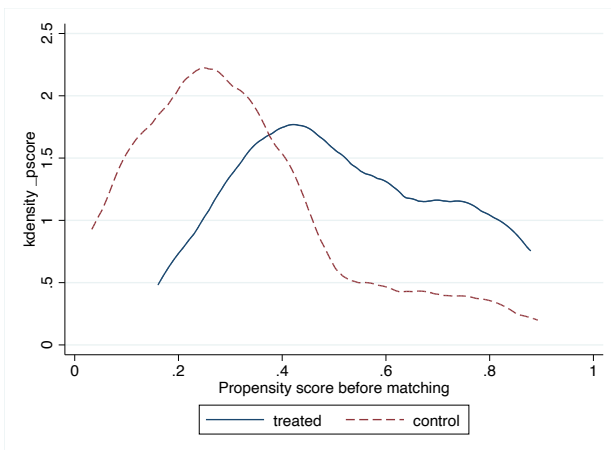
Figure 7: propensity scores before matching   Figure 8: propensity scores after matching
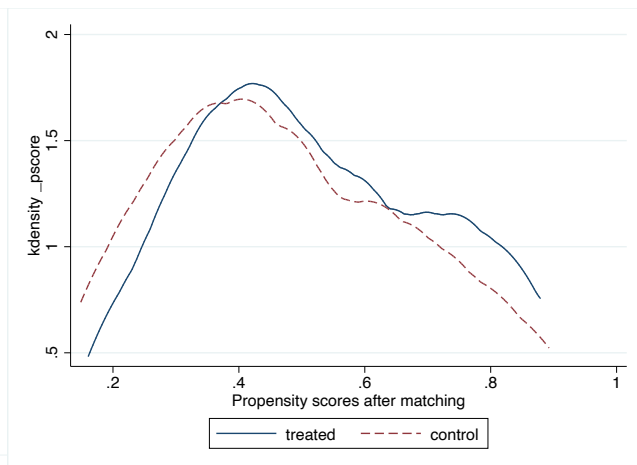
Table 8: means after propensity score matching

	Eligible group	Non-Eligible group	% bias	T-test
News	64.66	54.46	26.8	1.09
Interest in politics	2.76	2.5	34.2	1.43
Trust in politicians	5.62	5.62	0.0	0.00
Left-right scale	5.41	4.53	33.9	1.36
Satisfaction economy	5.62	5.94	-16.2	-0.70
Satisfaction government	4.88	4.71	8.5	0.34
Satisfaction democracy	6.44	6.24	11.3	0.46
Happy	7.82	7.65	11.6	0.43
Religious	4.41	3.97	13.2	0.59
Household members	3.56	3.35	11.2	0.65
Income	3.38	3.38	0.0	0.00

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

Table 8 shows the means of the variables of the Eligible group and Non-Eligible group after propensity score matching. As expected, the Eligible group listens to, reads and watches more news than the Non-Eligible group. Just like in Table 6, the differences between the two groups are now larger than before the propensity score matching for the variables interest in politics, left-right scale, satisfaction economy and happy. However, as can be seen in the last column there are no significant differences between the two groups. The propensity score matching was thus done properly and the two groups can now be compared.

Table 9: regression with same year surveys as elections

	Coefficient
Voted	0.313*** (0.001)
N	83

Standard error in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9 shows the result of the regression with the same year surveys and elections. As can be seen in Table 9, there is a highly significant treatment effect. After propensity score matching, the variable close is 2.83 for the Non-Eligible group and 2.94 for the Eligible group. The coefficient is 0.313. This implies that people who voted feel on average 10,6% closer to a political party than people who did not vote.

This effect is more than three times as large as in the original model and more than twice as large as in the model with the limited age difference. The results of this model imply that people's attitudes towards political parties have significantly changed in the time between voting (or being ineligible at the time of an election) and the time the survey was actually held. It is important to note that the observations that were kept in this analysis do not reflect the opinion of the respondent immediately after the election. Therefore, the average treatment effect could even be larger if the survey of the opinion of respondents was held immediately after the election. Of course, it is important to keep in mind that there were only 83 observations for this analysis. A larger dataset might lead to different results. Finally, in a new analysis I combine model 2 and model 3 and see whether that leads to any new insights. However, the dataset is too small to provide conclusive results.

VII. Conclusions

In this paper I investigated whether voting during parliamentary elections makes individuals feel closer to political parties using data from the European Social Survey database. Most literature predicts that the act of voting leads to more polarisation. The results in this paper follow most of the literature. The analysis shows that the act of voting does increase polarisation. Individuals who voted feel on average 3% closer to a political party than individuals who did not vote. After conducting several robustness checks, the results hold. When I reduce the age difference and only compare 17 year olds to 18 year olds, polarisation increases compared to the original model. Individuals who voted feel on average almost 5% closer to a political party than individuals who did not vote. Finally, when I only use surveys from the same year that parliamentary elections were held, the effect is more than three times as large as in the original model and more than twice as large as in the model with the smaller age difference. Individuals who voted feel on average almost 11% closer to a political party than individuals who did not vote.

The results from this paper follow most of the existing research done on the role of cognitive dissonance in political elections (e.g. in the United States). Even though there are large differences between the political systems of the United States and the Netherlands, the act of voting leads to polarisation in both countries. The subsequent implication for politicians and policymakers is that polarisation can partly be explained by the act of voting. If polarisation is seen as a nuisance, politicians and policymakers could focus on explaining cognitive dissonance and the role it plays in political elections. If individuals have a better understanding of the role of cognitive dissonance, the attachment to political parties might be influenced less by the simple act of voting itself.

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One of the drawbacks of this study is that individuals might form stronger political preferences when they are older. The results in this research should therefore be interpreted with caution. For further research, it would be interesting to analyse the effect of age on voting. However, it is extremely difficult to do so because of voter endogeneity. You would need another external factor that determined that some individuals did not vote. Furthermore, the variable *close* has quite a limited range of potential answers that a respondent can give. There are only four answers ranging from 'not at all close' to 'not close', 'quite close' and 'very close'. The results might have been different if there would be a wider answer scale. With a wider scale, it is likely that there would be more diversity between the answers. With more diversity between the answers, the average treatment affect could be larger. Further research could indicate if this is the case. Another interesting avenue would be to study whether voting has a negative effect on the trust in politicians, the parliament and the satisfaction of the government. Finally, it would be interesting to see if the shift in attitudes changes over time. Panel data of individuals who voted and their attachment to political parties would be ideal to investigate whether the attachment to political parties changes over time, and whether voting during elections plays a role.

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Appendix A - News

As discussed earlier, for round six and seven of the ESS, respondents were asked how many minutes they watched news about politics on the television. They were not asked how many minutes they listened to news about politics on the radio or how many minutes they read newspaper articles about politics. In order to use a comparable variable for round six and seven and for the previous five rounds, the data needs to be transformed. For the first five rounds, I run a linear regression with *total time* as dependent variable and *tv* as independent variable. As can be seen in Table 10, the coefficient is highly significant. In order to get the total amount an individual read, listened to and watched news about politics I multiply the minutes they watched the news by 1.203. This should give an estimation that is good enough to use as a single variable for all different rounds.

Table 10: linear regression total time

VARIABLES	(1) Model 1	(2) Model 2
tv	1.203***	1.203***
	(0.0870)	(0.0870)
Constant	24.08***	24.08***
	(3.476)	(3.476)
Observations	198	198
R-squared	0.494	0.494

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix B - Correlation

Table 11 shows the results of the correlation test. The numbers stand for the different variables that I used in the analysis. The combination of numbers and variables can be find below the table.

Table 11: correlation test

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1.00															
2	0.150	1.00														
3	-0.069	0.080	1.00													
4	-0.054	0.125	0.720	1.00												
5	-0.048	-0.068	0.081	0.061	1.00											
6	-0.011	0.061	0.380	0.304	0.101	1.00										
7	-0.063	0.016	0.655	0.604	0.088	0.419	1.00									
8	-0.070	0.089	0.563	0.546	0.075	0.351	0.568	1.00								
9	-0.011	0.042	0.220	0.176	0.118	0.122	0.227	0.255	1.00							
10	0.002	-0.001	0.065	-0.000	-0.030	-0.094	0.066	-0.020	0.086	1.00						
11	-0.017	0.023	0.128	0.142	0.059	0.039	0.130	0.116	0.071	-0.000	1.00					
12	-0.049	-0.023	0.047	-0.041	0.036	-0.056	-0.029	0.014	0.016	0.220	0.084	1.00				
13	-0.010	0.140	0.158	0.063	0.232	0.164	0.126	0.144	0.092	-0.140	0.003	0.008	1.00			
14	-0.016	0.085	0.024	-0.002	0.114	0.080	0.037	-0.028	0.043	-0.078	0.113	-0.087	0.070	1.00		
15	-0.083	0.016	0.222	0.185	0.042	0.104	0.140	0.248	0.110	-0.124	0.038	0.133	0.192	-0.023	1.00	
16	-0.086	-0.031	0.026	0.035	-0.016	-0.017	0.069	0.077	0.034	-0.101	0.020	0.147	-0.050	-0.036	0.076	1.00

1 = *news*, 2 = *interest in politics*, 3 = *trust in parliament*, 4 = *trust in politicians*, 5 = *left-right scale*, 6 = *satisfaction economy*, 7 = *satisfaction government*, 8 = *satisfaction democracy*, 9 = *happy*, 10 = *religious*, 11 = *country born*, 12 = *household members*, 13 = *gender*, 14 = *education*, 15 = *income*, 16 = *region*.