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Publication date:
2017

Citation for published version (APA):
Mahler, D. G. (2017). *Do Altruistic Preferences Matter for Voting Outcomes?* Working paper

Do Altruistic Preferences Matter for Voting Outcomes?*

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November 5, 2017

Abstract

Extensive evidence has shown that some people vote for altruistic reasons while others vote for selfish reasons. This paper analyzes how, if at all, altruistic preferences matter for voting outcomes. To this end, a Danish survey is conducted ($n = 2000$) where respondents are asked to identify (1) the party they would vote for if elections were held tomorrow, (2) the party they would vote for if they only were to consider what is best for themselves, and (3) the party they would vote for if they were to consider what is best for society as a whole. Differences in where individuals cast their altruistic, selfish, and actual votes are analyzed by locating the Danish political parties in a political compass. Altruistic preferences are found to drive votes to the left and away from extreme candidates. A smaller U.S. survey on the 2016 presidential candidates ($n = 400$) yields similar results. The results suggest that political candidates may be able to increase their vote share by capitalizing on the duality of voting behavior and influencing whether voters vote selfishly or altruistically.

Keywords: Altruism, elections, preferences, voting

JEL: A13, D64, D71, D72

*I am thankful for comments received from participants at Harvard's Political Economy Workshop, Harvard's Working Group in Political Psychology and Behavior, University of Copenhagen's Public Economics and Political Economy Seminar, and the Social Choice and Welfare Conference in Lund. In addition, I am grateful for comments and advice from Ryan Enos, Chase Harrison, and David Dreyer Lassen. The usual disclaimer applies. This project has received support from the European Research Council (Starting Grant).

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“Once upon a time two boys found a cake. One of them said, ‘*Splendid! I will eat the cake.*’ The other one said, ‘*No, that is not fair! We found the cake together, and we should share and share alike, half for you and half for me.*’ The first boy said ‘*No, I should have the whole cake!*’ Along came an adult who said, ‘*Gentlemen, you shouldn’t fight about this: you should compromise. Give him three quarters of the cake.*’”

([Smullyan, 1980](#), p. 56)

1 Introduction

Some of the most important economists and political philosophers over the past century have argued that individuals are able to make judgments based on what they think is best for themselves, and based on what they think is best for society as a whole ([Arrow, 1951](#); [Harsanyi, 1955](#); [Sen, 1977](#); [Dworkin, 1978](#); [Elster, 2006](#)). This dichotomy of judgments has been the subject of intense study in the context of voting. Do individuals vote based on what they think is best for themselves or based on what they think is best for society as a whole? Downs’ canonical model of economic voting assumes that when confronted with different political platforms, ‘*a rational man always takes the one which yields him the highest utility ceteris paribus; i.e. he acts to his own greatest benefit*’ ([Downs, 1957](#), p. 36). However, recent literature has suggested that some individuals are motivated by altruistic or other ethical concerns when voting ([Feddersen and Sandroni, 2006](#); [Feddersen et al., 2009](#); [Messer et al., 2010](#)). Indeed, one of the possible explanations for why we see such high turnouts despite the negligible chance of a single vote to be decisive, is that people vote for altruistic reasons ([Fowler, 2006](#); [Edlin et al., 2007](#); [Jankowski, 2007](#)).

Prior studies have primarily analyzed *whether* individuals vote altruistically or selfishly. This paper takes as a premise that some people vote altruistically and others selfishly, and investigates if this duality of voting behavior matters for voting outcomes. If there are no systematic differences between individuals’ selfish and altruistic preferences, then altruistic voting need not matter for election outcomes. To analyze whether altruistic preferences matter, a Danish survey is designed where a representative sample of more than 2000 Danish voters are asked to identify:

- the party they would vote for if elections were held tomorrow
- the party they would vote for if they only were to consider what is best for themselves
- the party they would vote for if they were to consider what is best for society as a whole

By comparing the answers to these three questions, it is possible to analyze how, if at all, voting outcomes are impacted by altruistic preferences (here proxied by answers to the

last question). In order to analyze this in detail, the Danish political parties are located in a political compass such that differences in *where* the respondents place their actual, altruistic, and selfish votes can be scrutinized. This compass is constructed by scraping answers from two extensive online ‘candidate tests’ that more than 90% of all Danish MPs answered.

It is not possible to infer whether individuals vote altruistically or selfishly based on the three questions. This, however, is not necessary to determine if altruistic preferences matter for the outcome. To illustrate this, consider a voter that casts his ballot for the party he thinks is best for society but not for the party he thinks is best for himself. Although such behavior is consistent with altruistic voting, since his motivations are not inferred, it cannot be concluded that he votes altruistically. He might vote for a third reason, which happens to result in a vote for the candidate he also thinks is best for society as a whole. It can be inferred, however, that he does not vote selfishly. This divergence between his actual and selfish vote choice can be used to analyze what *would have happened* if he had voted selfishly. At the aggregate level, similar observations can be used to analyze what the election outcome *would have looked like* if more people had voted selfishly or altruistically. Although such an outcome is a hypothetical construct, it may be possible for candidates and parties to influence the election in direction of this hypothetical outcome.

Of the 2000 respondents, 64% vote for the party they think is best for society *and* best for themselves. It is unclear whether these respondents vote altruistically, selfishly, or for a third reason. Since these respondents provide no variation, they will not drive any of the results. This does not matter for the purpose of this study, as altruistic voting behavior of these individuals by construction will not influence the outcome. Of the 2000 respondents, 15% do not vote for the party they think is best for society, while 29% do not vote the party they think is best for themselves. Hence, there is according to the survey at most 85% altruistic voters and at most 71% selfish voters.

When facing the three questions, individuals may want to appear ‘consistent’ by aligning their vote choices more than what their true preferences reflect. If this is the case, then any differences between the three vote distributions should be considered a lower bound. Individuals may also be subject to a social desirability bias, implying that they would like to be seen as altruistic rather than selfish. This could lead them to (1) deliberately select a party in the selfish question that is far away from their actual vote and (2) falsely claim that their actual vote is the same as what they think is best for society as a whole. This occurrence would be strongest with the third question that the respondents answer, where the purpose of the study may have become clearer. Two points argue against such a social desirability bias. Firstly, the question order was partly randomized and there were no significant order effects. Secondly, in 12 cognitive interviews carried out to assess the quality of the questions, this behavior was not detected. Indeed, the purpose of the

survey was not apparent to the respondents.

The paper finds that if more people had voted selfishly, the outcome would have been more right-winged and more votes would have fallen on ideologically extreme candidates. If more people had voted altruistically, the outcome would have been more left-winged and more centered, but the differences here are quite small. This suggests that most people already vote altruistically. A smaller survey on the 2016 U.S. presidential candidates ($n = 400$) generates very similar results.

The findings suggest that if policy makers design policies based on the preferences of the electorate, they need to decide on whether to use individuals' altruistic or selfish preferences as inputs. If individuals' altruistic preferences are used, then optimal policies will have a more left-wing agenda. The results also suggest that political candidates may be able to increase their vote share by capitalizing on the duality of voting behavior and attempting to change whether voters vote selfishly or altruistically.

2 Definitions & Related Literature

Different streams of literature are related to this study. Before reviewing the literature, a concise definition of altruistic voting is needed. As a starting point, consider [Jencks \(1990, p. 53\)](#) who defines individuals as altruistic “when they feel and act as if the long-term welfare of others is important independent of its effects on their own welfare.” Individuals could thus be said to *vote* altruistically if they vote based on the welfare of others independent of what is best for themselves. Importantly, in the context of this study a stronger version of altruism is needed, which one could label societal altruism. When voting, individuals may consider the welfare of certain others of society such as their region, ethnicity, or socio-economic class etc. Altruistic voting behavior in this study requires individuals to incorporate the entire society as others. Hence, *individuals will be said to vote altruistically if they vote based on the welfare of society as a whole independent of what is best for themselves*. It will not be claimed that any individuals *are* altruistic, only that they *vote* altruistically. Whereas altruistic behavior often contains some element of self-sacrifice, this dimension is hardly present in altruistic voting.

Notice that this definition is much stronger than the definitions of sociotropic voting or social preferences. Sociotropic voting is defined as “*taking some account [...] of the collective's interest*” when voting ([Meehl, 1977, p. 14](#)). Social preferences loosely imply that individuals' put weight on other people's payoff when making decisions ([Charness and Rabin, 2002](#)). It cannot be inferred whether individuals with social preferences or sociotropic behavior act for the sake of their own benefit or whether they have a genuine concern for other people's welfare. Hence, neither need be altruistic under the chosen definition.

A first relevant stream of literature is precisely the literature on sociotropic voting.

Following [Kinder and Kiewiet \(1979\)](#), a substantial literature has investigated whether individuals' vote choices best can be explained by evaluations of personal finances or by evaluations of the national economy. This literature generally finds that individuals primarily are guided by evaluations of the national economy and less so by their own pocketbook or other selfish concerns (see e.g. [Sears *et al.*, 1979, 1980](#); [Markus, 1988](#); [Sears and Funk, 1990](#); [Lewin, 1991](#)). This is consistent with some individuals possessing altruistic preferences and invoking these in the voting booth. As argued in the previous paragraph, people may be concerned with the national economy and still be selfish if they think that the best way to advance their own interest is to create a healthier national economy. Therefore, although this kind of voting is consistent with altruistic voting behavior, it need not reflect altruism ([Kiewiet and Lewis-Beck, 2011](#); [Kinder and Kiewiet, 1981](#)).

Another set of studies imputes individuals' likely material self-interest and checks if this aligns with their reported attitudes. These studies generally find that individuals' attitudes do not align much with their material interests ([Fisher, 1985](#); [Sudit, 1988](#); [Funk, 2000](#); [Chong *et al.*, 2001](#)). Other studies try to detect if some individuals vote altruistically by eliciting different kinds of preferences. This is close to the approach taken in the present paper. [Hudson and Jones \(1994, 2002\)](#) ask their respondents (i) how they would vote with respect to a specific government policy, (ii) how they would vote if the goal was their self-interest, and (iii) how they would vote if considering the public interest. They find that public concerns are a stronger determinant of voting behavior than selfish concerns, suggesting a substantial presence of altruistic voting.

A final relevant stream of literature illustrates that altruistic behavior matters when evaluating outcomes. One example is cost-benefit analyses and particularly contingent valuation studies. When individuals are asked to state their willingness to pay for a public good, some people may take on their 'public hat' while others may take on their 'private hat' ([Nyborg, 2000](#); [McConnell, 1997](#)). That is, some people might invoke their altruistic preferences and answer what the public good contributes to the average person or to the entire community. As the story in the epigraph illustrates, if one aggregates such altruistic preferences with selfish preferences, the final evaluation mixes two different concepts and has little relevance. Altruism also matters for policy evaluations based on revealed preferences. Consider two individuals that have the same selfish preferences over the consumption of a set of goods that includes a public good. Suppose further that the individuals also are capable of ranking their own consumption bundles according to what they think is best for society as a whole. One of the individuals may invoke such altruistic preferences when doing purchases ([Lusk *et al.*, 2007](#)). This individual would then consume more of the public good than is in his own interest. Often this choice behavior is used to recover preferences for each individual, which are used to derive the welfare of each individual. In this example, one would falsely infer that the individual

motivated by altruism gets a high welfare boost from purchasing the public good even though his selfless behavior in fact could harm his level of well-being.¹

In the context of elections, only a few papers have tried to determine if altruistic preferences matter for evaluating outcomes. Feddersen *et al.* (2009) show that if some people have ethical expressive preferences (which is similar to the notion of altruism adopted here), then the voting outcome will be morally biased in large elections. Morally biased means that morally superior alternatives will get more votes. Feddersen *et al.* (2009) do not attempt to look at the political direction of this bias. The studies cited earlier by Hudson and Jones (1994, 2002) do look at the direction of the bias in terms of government spending. They find that preferences based on the public interest on average are more supportive of increasing public spending than preferences based on self-interest. This paper will differ from these studies by looking at how altruistic preferences matter for voting outcomes at large considering all relevant political dimensions.

3 Hypotheses

The equilibrium effects of altruistic voting behavior is a sparsely studied subject. I will distinguish between three ways in which altruistic preferences may matter and based on previous literature generate hypotheses to be tested by the data.

The first matter of concern is whether the actual outcome is more in line with the hypothetical outcome where all vote altruistically or the hypothetical outcome where all vote selfishly (henceforth the altruistic outcome and the selfish outcome). Notice that the actual outcome does not have to be related to the selfish or altruistic outcome at all. The story in the epigraph about the two boys and the cake reflects this possibility. If both boys had been selfish, they would demand the cake for themselves and a compromise would be to split it evenly. If both boys had been altruists, supposedly, they would both want to split the cake evenly and a settlement would be to do so. Once one is selfish and the other altruistic, the outcome reflects neither the aggregation of selfish preferences nor the aggregation of altruistic preferences. For this reason, Elster (1997, p. 14) argues that it can be “a dangerous thing” if some but not all vote according to what they believe constitutes the common good. If some vote selfishly and others not, then the preferences of the selfish voters will be counted more than once, which may generate a socially inferior outcome.

The first aim of the empirical analysis will be to investigate whether such a pattern exists. The literature summarized in the previous section suggests that more people vote altruistically than selfishly. Therefore, I expect the actual outcome to lie closer to the

¹Some individuals may be purchasing altruistically because of the ‘warm glow’ effect of doing so (Andreoni, 1990), in which case it indeed could be beneficial to their own well-being. As argued, this paper looks at a more genuine notion of altruism which requires that acts are carried out independently of considerations about personal welfare.

altruistic outcome than the selfish outcome. This would imply that if all people voted altruistically, the effect would be relatively small as most people already vote altruistically. If, on the other hand, all people were to vote selfishly, the effect could be quite substantial. Based on this I generate the following hypothesis:

Hypothesis 1: The actual outcome will be a combination of the altruistic outcome and the selfish outcome but more aligned with the altruistic outcome.

Secondly, one can look at whether the outcome is more left-winged or right-winged if more people vote altruistically or selfishly, respectively. In order to derive a hypothesis in this regard one could set up a simple model. A natural starting point would be modeling one political axis where voters derive utility from their income alone, and parties or candidates propose different income distributions. Individuals could be said to vote selfishly if they maximize their own utility, and altruistically if they maximize the utility of the entire society. There would be several shortcomings to this approach. First of all, there is more than one dimension in politics. Individuals with a low income may vote for the right wing for selfish reasons because cultural, religious, and social values outweigh economic concerns (Frank, 2007). Secondly, the set-up could change substantially if the model was dynamic rather than static, as individuals may be willing to tolerate inequality if they believe this is necessary to foster growth and future well-being. Thirdly, there is no reason to believe that the altruistic judgments would be utilitarian. Individuals may vote on what they think is best for society based on other concepts of justice or fairness. Individuals may also vote altruistically based on, for example, environmental concerns or other non-person specific outcomes. Finally, individuals may vote altruistically by voting for candidates based on valence judgments, such as their character traits and ability to govern (Stokes, 1963). In sum, it is very hard to make a credible hypothesis about the altruistic outcome through a simple model.

I will instead rely on previous literature. Zettler *et al.* (2011) show that altruistic people are more inclined to support left-wing agendas due to a concern for social equality. Hudson and Jones (1994, 2002) find that preferences for the public interest on average are more supportive of increasing public spending than votes based on self-interest. Norton and Ariely (2011) and Kiatpongsan and Norton (2014) report that people find the ideal distribution of respectively wealth and wages more equal than the actual distribution. Based on these findings I generate a second hypothesis:

Hypothesis 2: The altruistic outcome will be more left-winged than the actual outcome, and the selfish outcome will be more right-winged.

Finally, after locating the votes in a political dimension, it may be interesting to see if the variance of the vote distributions are impacted by altruistic voting. A lower variance

can be interpreted as a greater degree of political agreement and - holding the mean location of the votes fixed - a smaller support for extreme candidates. Little previous literature is available for guidance in this perspective and it is therefore not possible to create a credible hypothesis.

4 Context & Data

4.1 Context

In order to analyze the impact of altruistic preferences on voting outcomes, a representative sample of 2000 Danish voters are surveyed. The survey was conducted four months following the 2015 Danish general election. Denmark has a multi-party parliamentary democracy with nine political parties represented in the parliament. The Danish political system has a relatively small degree of polarization. In the past decades, shifting center-right and center-left governments have taken office. The 2015 election saw the center-left government headed by the first female Prime Minister, Helle Thorning Schmidt, from the Social Democrats be replaced by a right-wing government. The new government was led by Lars Løkke Rasmussen from the Liberals with support from the Danish People’s Party, the Conservatives, and Liberal Alliance. The election outcome was notable in that it resulted in a minority government containing only the Liberals even though another right-wing party, the Danish People’s Party, obtained a higher vote share. The nine political parties and their vote shares in the election are shown in Table 1.

Table 1: Vote Shares in the 2015 Danish General Elections

Left-wing parties	Right-wing parties
A: Social Democrats (26.3%)	O: Danish People’s Party (21.1%)
Ø: Red-Green Alliance (7.8%)	V: Liberals (19.5%)
Å: The Alternative (4.8%)	I: Liberal Alliance (7.5%)
B: Social Liberal Party (4.6%)	C: Conservative People’s Party (3.4%)
F: Socialist People’s Party (4.2%)	

Danish politics is focused on economic policies (employment, taxation etc.) and value policies (immigration, environment etc.). The nine political parties offer combinations of views in both of these dimensions. The relatively low degree of polarization in Danish politics means that the voter can choose between parties that are not too different from each other. This, in turn, makes it less likely that voters who have different selfish and altruistic judgments still believe that the same party is most capable of advancing both of these concerns. This makes the Danish political system a good unit of analysis. To check whether the Danish findings can generalize to other Western democracies, a smaller

survey on the 2016 U.S. presidential candidates is also conducted. The U.S. democracy in many ways represents a most different case to the Danish one.

4.2 Survey Design

The survey was conducted by the survey agency, Epinion, which delivers the opinion polls to the Danish Broadcasting Corporation, DR. The respondents were a representative sample of the Danish electorate based on gender, region, and age. Survey weights have been used throughout the analysis to assure full representativeness over these variables. The respondents were asked the following three central questions:

- Who would you vote for if general elections were held tomorrow?
- Who would you vote for if you only were to consider what is best for yourself?
- Who would you vote for if you were to consider what is best for society as a whole?

I refer to the answers to these questions as the ‘actual votes’, the ‘selfish votes’, and the ‘altruistic votes’. Naturally, the answers only reflect hypothetical voting intentions and not votes that were carried out. As such, it may be appropriate to add ‘intended’ or ‘hypothetical’ prior to the three labels. For simplicity, I will just use ‘actual’, ‘selfish’, and ‘altruistic’.

The framing ‘society as a whole’ was chosen since it contains less political bias than using phrases such as ‘the country’ or ‘Denmark’. Besides these three questions, the questionnaire contained about 25 questions on voting behavior, political preferences, political knowledge, altruism, and demographics. The questions were to the extent possible adapted from the 2015 Danish Election Survey.² The full questionnaire is available in the Supporting Information. The questionnaire was tested using best practices in cognitive interviewing (Willis, 2004). In total 12 cognitive interviews were conducted. The cognitive interviewing resulted in minor rephrasing of questions but revealed no noteworthy problems in terms of understanding the three essential questions. Only individuals that do not regularly vote in elections were unable to answer the questions on selfish and altruistic voting. When individuals had to answer what is best for themselves, they mostly thought about their own economic or occupational situation. When answering what was best for society, they referred to ideology and ethical values. None spoke of strategic concerns or misplacing their views so as to appear either selfish or altruistic. Indeed, it was not clear to the interviewees that the point of the questionnaire was to analyze altruistic voting behavior.

²One question on whether voting is a duty or a choice was adapted from the 2010 American National Election Study. Another question on distributive preferences was taken from the TV2 candidate test (<http://politik.tv2.dk/valg2015/kandidattest>).

A pilot with 200 respondents was conducted in October 2015 to ensure that there was enough variation in the responses to continue. Of the 2000 final respondents, 1600 successfully answered all three central questions. 96% of the respondents who knew who to vote for if elections were held tomorrow were also able to answer either the altruistic or the selfish question, while 85% were able to answer both. This suggests that the respondents were able to comprehend and answer the questions.

When answering the three central questions, it is possible that the respondents aligned their answers in order to appear consistent. This would diminish the differences between the various vote distributions and imply that if any differences are found, these should be considered a lower bound. It is also possible that the respondents falsely placed their selfish choice far from their actual choice, so as to appear non-selfish, or that they falsely aligned their altruistic choice with their actual choice to appear altruistic. This would overestimate the difference between the selfish votes and the actual votes, and underestimate the difference between the altruistic votes and the actual votes. Although none of the cognitive interviews pointed to this being a threat, to make this kind of misrepresentation less likely, the respondents were randomly allocated into two groups. One group was asked the ‘best for yourself’-question before the ‘best for society as a whole’-question, while the other had the order reversed. It was not possible for the respondents to go back and change their previous answer. The respondents’ incentives to misplace their true stances become more salient when they already have answered one or two of the three questions. Initially, the intention was only to use the answers to the first question asked. However, a chi-squared test for whether the selfish (altruistic) party choices are independent of the question order results in a p-value of 0.17 (0.27). Relatedly, a chi-squared test for whether the likelihood of voting non-selfishly (non-altruistically) is independent of the question order results in a p-value of 0.85 (0.29). Consequently, the question ordering, and thereby the deliberate misplacement of selfish votes, does not seem to matter and the whole sample will be used when making inferences.

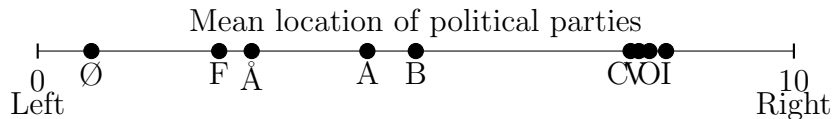
4.3 Placing the Political Parties in Political Axes

The answers to the three central questions make it possible to detect differences in vote distributions by political parties and political blocs. In order to gain a deeper understanding of where the votes move, the political parties will also be located in political axes. This will be done in two ways:

1. One Dimension: The respondents are asked to locate each political party on a scale from 0-10, where 0 means extreme left and 10 means extreme right. Using the average of these locations, the different political parties can be placed in a one-dimensional space. In order to ensure that the assessments are somewhat reliable, only the respondents who display sufficient political knowledge (by correctly

reporting the number of members of parliament and the parties partaking in the government) are used. The resulting placements are given in Figure 1.

Figure 1: Placement of Political Parties



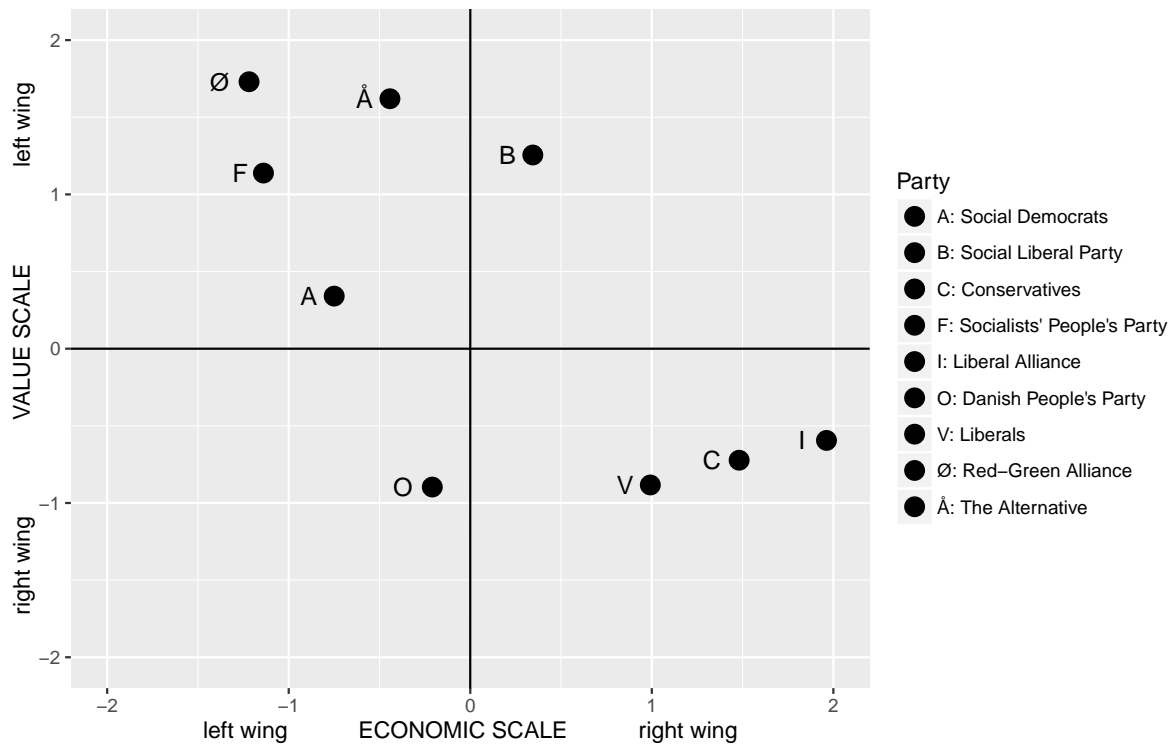
Note: Average location of the various political parties on a scale from 0 (left) to 10 (right) using the mean assessment of respondents who displayed a certain level of political knowledge. Ø: Red-Green Alliance, F: Socialist People’s Party, Å: The Alternative, A: Social Democrats, B: Social Liberal Party, C: Conservative People’s Party, V: Liberals, O: Danish People’s Party, I: Liberal Alliance.

The four right-wing parties, C, V, O, and I cluster around the same point despite being quite different politically. For example, the Danish People’s Party (O) is normally considered left of center on economic issues but far right-wing when it comes to attitudes towards immigrants. Liberal Alliance (I), on the other hand, is the most right-wing party economically, but more moderate when it comes to immigration policies. The method fails to capture this due to the reduction of dimensionality. When individuals are forced to locate parties on a one-dimensional scale they might not share the same interpretation of the scale. The second method deals with this problem.

2. Multiple Dimensions: To capture the multiple dimensions present in Danish politics, I utilize online candidate tests conducted by the two main Danish television stations, DR and TV2, prior to the 2015 elections. These tests asked all politicians running for parliament to display if they agree or disagree with respectively 15 and 42 statements on various political issues such as “more jobs should be created in the public sector.” The statements had five possible answer categories ranging from completely disagree to completely agree. Remarkably, 161 of the 175 elected candidates to parliament answered all of these questions. Scraping their answers makes it possible to conduct factor analysis to determine the number of relevant dimensions in Danish politics. In general, there appears to be three dimensions; the economic dimension, the value dimension (containing issues such as immigration, the environment and crime), and EU politics. Political discourse in Denmark has it that the EU is not an important determinant of voting behavior, so only the first two dimensions will be dealt with in this analysis. Every politician is given a factor score in each of the two dimensions and party averages are computed such that the parties can be located in a political compass. The resulting compass is shown in Figure 2. A detailed derivation of the compass is given in the Supporting Information. This approach

easily captures the difference between the Danish People’s Party (O) and Liberal Alliance (I). It should be noted, though, that the questions may have been chosen so as to deliberately highlight political differences that may not be very salient or important for the voters. The final compass deals with this issue by weighting the loadings with the importance of the statements as assessed in a separate poll.

Figure 2: Political Compass



Note: Political compass of the nine political parties in the Danish parliament in two political dimensions, the economic scale and the value scale. The figure is constructed from an exploratory factor analysis based on Danish politicians’ answers to DR and TV2’s candidate test (see Supporting Information for details). The scales have been standardized such that a value of 1 means one standard deviation from the mean position of the Danish MP’s.

After the political positions have been calculated using these two methods, the statistical analysis amounts to comparing i) the share of votes by party, ii) the mean location of the votes, and iii) the variances of the votes. With regards to comparing the share of votes by party, McNemar’s test will be used. When comparing the mean location of the votes, paired t-tests will be used. For comparisons of variances, Levene’s test will be used to account for the high degree of non-normality.

Even though the median voter likely will determine the outcome, I prefer to look at the mean and variance of the votes. The party the median voter favors will at times not change even though there is a great shift of votes. Conversely, it may change even though there is only a slight change of votes (Höchtel *et al.*, 2012). With only one sample to analyze, this binary measure will not be very informative. The size of the change in

the mean location, on the other hand, will be suggestive of how often one can expect the median vote to change.

5 Results

5.1 Descriptive Statistics

Before analyzing whether altruistic voting matters, it is useful to establish how big an overlap there is between the altruistic votes, selfish votes, and actual votes. Table 2 breaks down the degree of overlap between the answers to the three central questions.

Table 2: Overlap Between Altruistic, Selfish, and Actual Votes

		<i>Actual vote = selfish vote</i>		
		No	Yes	Sum
<i>Actual vote = altruistic vote</i>	No	8.0%	6.9%	14.8%
	Yes	21.5%	63.7%	85.2%
	Sum	29.4%	70.6%	100%

Note: Breakdown of overlap between the answers given to the actual voting question, the selfish question, and the altruistic question. $n = 1600$.

63.7% of the respondents selected the same party as their actual choice, altruistic choice, and selfish choice. This is hardly surprising as many individuals may convince themselves that what is best for themselves is also best for society at large (Edlin *et al.*, 2007). 29.4% voted for a party they did not believe was best for themselves and 14.8% voted for a party they did not believe was best for society.

It is not possible to infer if individuals voted selfishly or altruistically for two reasons. Firstly, it cannot be inferred whether the 63.7% voted for altruistic reasons, selfish reason, or for a third reason. Secondly, suppose a voter votes for party A, selfishly prefers party B, and altruistically prefers party A. It is not possible to infer that this person voted altruistically, since the person may have voted for party A for a number of other reasons not related to altruism. However, it can be inferred that the person did not vote selfishly. Hence, it is possible to obtain upper bounds on the share that voted selfishly and altruistically. At most 70.6% voted selfishly and at most 85.2% voted altruistically. 8.0% voted neither selfishly nor altruistically. Of these 8.0%, 39% voted for a party that they spatially placed in between their altruistic choice and selfish choice on a left-right wing scale.

We can next try to characterize the voters who are likely to have voted altruistically (here proxied by the 21.5% that vote for what they think is best for society and not for what they think is best for themselves) rather than selfishly (the corresponding 6.9%).

This is shown in the first columns of Table 3. Respondents that are interested in politics are predicted to be more likely to vote altruistically. This may be because people interested in politics are more inclined to vote for ideological reasons which need not overlap with their personal interests. Two proxy variables for altruistic behavior (whether the person has donated blood or donated to charity) and a variable about preferences for redistribution come out insignificant. The reason for the many insignificant variables may be that strictly speaking only non-selfish versus non-altruistic voting is detected, which blurs the picture.

Table 3: Who Are the Altruistic and Consistent Voters?

	Altruistic Voters		Consistent Voters	
	Coef.	Std. err.	Coef.	Std. err.
Female	-0.39	(0.35)	0.15	(0.16)
Age	0.00	(0.01)	0.02***	(0.01)
Education level (8-point scale)	0.05	(0.11)	-0.09**	(0.04)
Personal income (8-point scale)	0.20	(0.13)	-0.10	(0.05)
Unemployed (yes/no)	0.76	(0.77)	0.24	(0.42)
Employee in the public sector (yes/no)	-0.51	(0.37)	0.04	(0.19)
Interested in politics (4-point scale)	0.50**	(0.24)	-0.39***	(0.11)
Supporter of a political party (yes/no)	-0.17	(0.32)	0.63***	(0.16)
Political standing (0=left to 10=right)	0.45	(0.25)	-0.43***	(0.11)
Political standing ²	-0.04	(0.02)	0.05***	(0.01)
In doubt of who to vote for (yes/no)	1.27	(1.15)	-0.24	(0.40)
Political knowledge (yes/no)	-0.08	(0.44)	0.27	(0.18)
Donated blood (yes/no)	-0.12	(0.33)	0.23	(0.15)
Donated money to charity (yes/no)	-0.26	(0.35)	0.06	(0.17)
Pref. for redistribution	-0.09	(0.18)	0.04	(0.08)
Voting is a duty (yes/no)	0.22	(0.33)	-0.23	(0.16)
Would vote strategically (yes/no)	-0.46	(0.32)	-0.33**	(0.16)
Observations	287		963	

Note: ** $p < 0.05$, *** $p < 0.01$. Characterization of altruistic and consistent voters based on binary logit regressions. *Altruistic Voters* is a binary variable equaling 1 if the respondents vote for a party they think is best for society but not best for themselves and 0 if they vote for a party they think is best for themselves but not best for society. *Consistent Voters* is a binary variable equaling 1 if the respondent chooses the same party for the actual, altruistic, and selfish question and 0 otherwise. The independent variable *Political knowledge* equals 1 if the respondent knows the number of seats in parliament and the parties in government, and 0 otherwise.

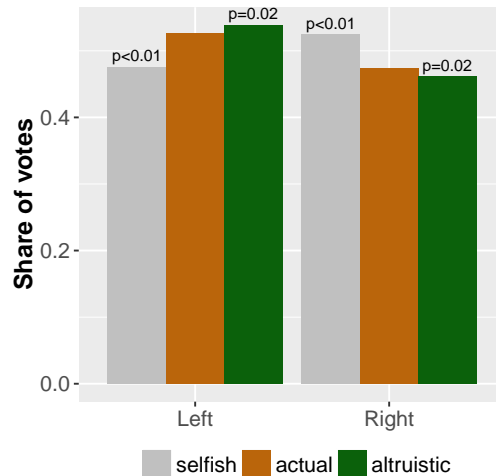
One can also see if there are differences between the ones whose votes overlap (the 63.7% that vote for the same in all three questions) and the ones that don't (the remaining 36.3%). This is shown in the right part of Table 3. Older people are more likely to report the same answer to all three questions. The same applies to supporters of a political party. The latter could be because individuals become interested in politics for ideological reasons, but once they belong to a political party, the success of this party becomes

their self-interest. Interestingly, individuals with political knowledge are less likely to give overlapping answers. This may be because they are more able to understand the nuances between the parties and hence select different ones for the different questions. Respondents that place themselves in the middle of a left-right scale are the least likely to give overlapping answers. People that place themselves in the extreme ends are more likely to be consistent. Perhaps this is because individuals who are at the extreme ends of the political spectrum can gain the most from politics and hence are most likely to convince themselves that their own gains are also to the benefit of society as a whole. Individuals that would consider voting strategically give less overlapping vote choices. One could fear that this will drive the differences between the altruistic, selfish, and actual vote choices. A robustness check will show that this is not the case.

5.2 Main Results

The distribution of votes by political bloc is shown in Figure 3. The right wing receives 52.5% of the selfish votes, 47.4% of the actual votes, and 46.1% of the altruistic votes. This suggests that altruistic voting generates a more left-winged outcome in line with hypothesis 2.

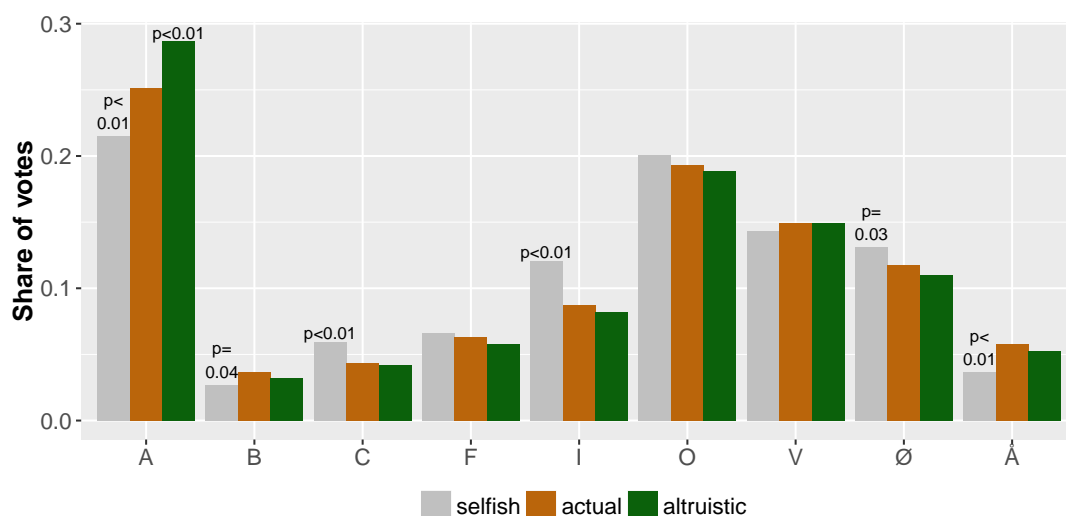
Figure 3: Distribution of Votes by Bloc



Note: Distribution of selfish, actual, and altruistic votes by political bloc. The p-values indicate difference from the share of actual votes using McNemar's test. $n = 1600$.

This can be broken down by political party as shown in Figure 4. The altruistic votes appear to be much more aligned with the actual votes than the selfish votes. This is in line with hypothesis 1. Only for the Social Democrats (A) is there a significant difference between the actual votes and the altruistic votes. This does not imply that there are no movements between the altruistic and actual votes for the other parties, but only that

Figure 4: Distribution of Votes by Party



Note: Distribution of selfish, actual, and altruistic votes by political party. P-values indicate difference from the share of actual votes using McNemar's test. $n = 1600$. A: Social Democrats, B: Social Liberal Party, C: Conservative People's Party, F: Socialist People's Party, I: Liberal Alliance, O: Danish People's Party, V: Liberals, Ø: Red-Green Alliance, Å: The Alternative.

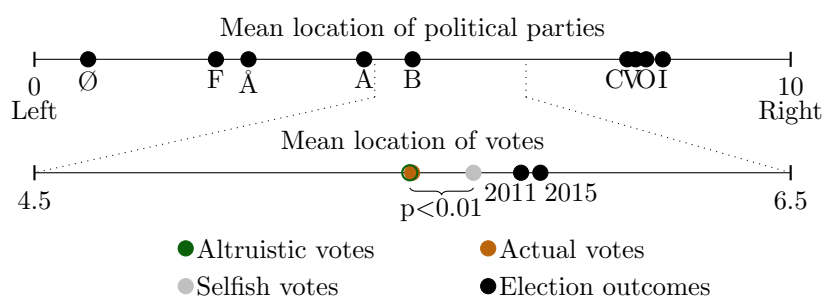
many of these movements balance out. The Social Democrats (A) is the major party in the left-wing bloc, which has governed Denmark in the majority of the past century. Conservatives (C), Liberal Alliance (I), and the Red-Green Alliance (Ø) receive more selfish votes than actual votes. The first two of these have the most right-wing economic policies while the latter has the most left-wing economic policies.

5.2.1 One Dimension

In order to break down the results in more detail, the political parties are placed on a scale from 0 (left) to 10 (right) using the mean placement by respondents who displayed a minimal political knowledge. The top part of Figure 5 shows these average placements. The bottom part shows the average location of the actual, altruistic, and selfish votes using the placements of the political parties.

The figure shows that the selfish votes were significantly more right-winged than the actual votes. The altruistic votes overlap with the actual votes. This suggests that if more people had voted altruistically the outcome would hardly have changed. The figure also plots the election outcomes of the two most recent elections using the party placements weighted with the share of seats each party obtained in the given election. As Denmark shifted from a center-left to a right-wing government from 2011 to 2015, and the difference between the selfish and actual votes is of greater magnitude, this difference is of meaningful

Figure 5: Mean Location of Votes



Note: The top part shows the average location of the various political parties on a scale from 0 (left) to 10 (right) using the mean assessment of respondents who displayed political knowledge. Given these placements, the bottom part shows the mean location of the respondents' actual, altruistic, and selfish votes. The altruistic votes and actual votes overlap almost entirely. The p-value is based on a paired t-test. The election outcome circles are constructed by using the placements of the political parties weighted with the share of seats each party obtained in the given election.

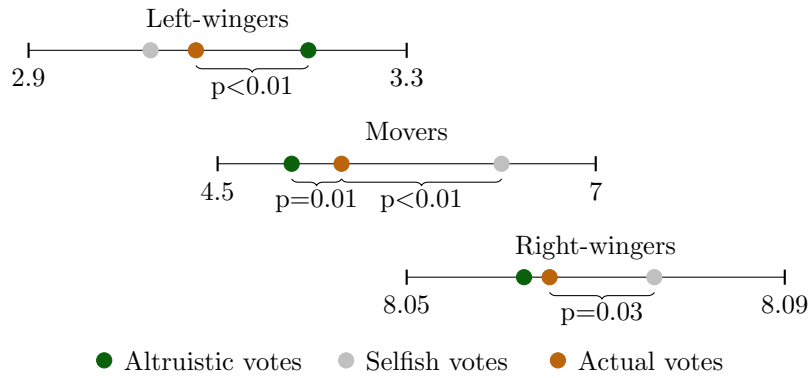
size.³

We can break down the results by different types of voters as shown in Figure 6. The top (bottom) part of the figure shows the average location of the altruistic, selfish, and actual votes for the subgroup of respondents who selected a left-wing (right-wing) party for all three choices. The middle part shows the location of the votes for respondents who selected both a right-wing party and a left-wing party in one or more of the three questions. A clear pattern emerges. Supporters of either side of the political spectrum believe that what is best for society is towards the center whereas what is best for themselves is further to the extreme in their own bloc.

Figure 6 indicates that the variances of the votes differ. This is tested in Figure 7, which shows the standard deviation of the actual, altruistic, and selfish votes. The selfish votes have a greater variance than the actual votes, and the altruistic votes have a smaller variance. Given that the mean location of the votes is near the center of the scale in all three cases, this suggests that the altruistic votes cluster more around centrist candidates, or in other words, that extreme candidates are less chosen.

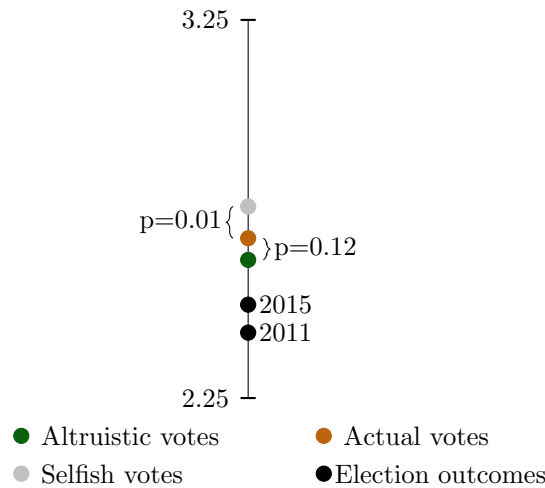
³There is a relatively big difference between the 2015 outcome and the actual votes for a few reasons. First of all, the survey was conducted 4-5 months after the election, which allows some voters to have changed their mind. In the intervening months Denmark was met by a refugee crises, a change of leadership in the main opposition party, and a national budget proposal with drastic changes in funding for development aid, environmental issues, education and more. Secondly, although the sample is representative by age, gender, and region, this may not be sufficient to capture all types of voters. Finally, the 15% of the sample who do not know who to vote for in either the selfish or altruistic question may give further issues with regards to representativeness.

Figure 6: Mean Location of Votes by Type



Note: Mean location of the actual, altruistic, and selfish votes by voter type. *Left-wingers (Right-wingers):* Individuals whose actual, selfish, and altruistic vote were for a left-wing (right-wing) party. *Movers:* Individuals whose actual, selfish, and altruistic votes contained both a left-wing party and a right-wing party. The scale is from 0 (left) to 10 (right). The p-values are from paired t-tests.

Figure 7: Standard Deviation of Votes



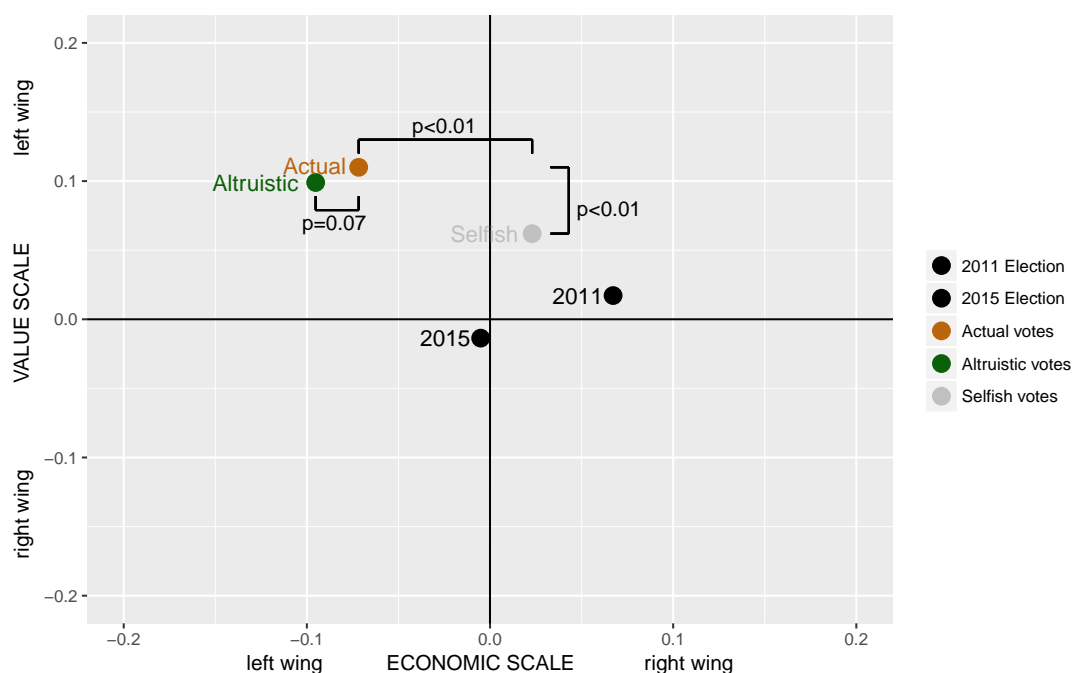
Note: Standard deviation of the actual, altruistic, and selfish votes using the placements of the political parties from Figure 5. The p-values are based on Levene's test.

5.2.2 Two Dimensions

A problem with the results presented thus far is that analyzing politics in one dimension may hide relevant information. To deal with this, the mean location of the selfish, actual, and altruistic votes can be compared using the political compass showed in Figure 2. This allows me to break down the party movements by the economic axis and the value axis. The results are shown in Figure 8.

By comparing the distance between the three points on the economic dimension with

Figure 8: Political Compass - Means



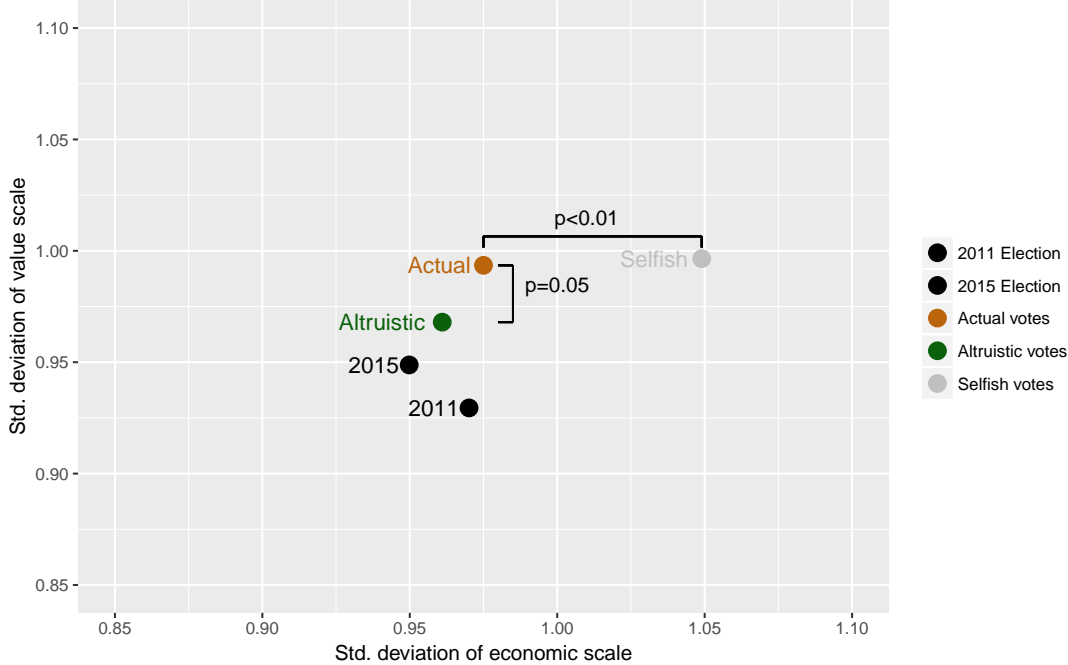
Note: Mean location of the selfish, actual, and altruistic votes in a two-dimensional political compass using data from DR and TV2's candidate test. 2011 and 2015 reflect the average location of votes in these two elections. The p-values are from paired t-tests.

the distance between the three points on the value dimension, one quickly sees that economic concerns seem to drive most of the difference. The selfish votes are more right-winged in both dimensions, particularly in the economic scale. The altruistic votes are slightly more left-winged economically, but with no noteworthy difference in value politics. There might be less of a difference in value politics because values in general incorporate views about society as a whole and to a lesser extent private concerns. It may also be harder for individuals to evaluate what values are best for themselves in contrast to evaluating what economic policies are best for themselves. Again, when comparing the differences with the 2011 and 2015 election outcomes, they appear to be of important magnitude.

Figure 9 breaks down the results in the two dimensions by variance. The distance between the points is again greater in the economic scale than in the value scale. Selfish votes have a much greater variance in the economic dimension. Hence, when people vote selfishly they tend to choose parties that are on the extreme ends of the economic dimension. This is consistent with the story that if you have an above average income, your selfish vote from an economic perspective is the one that proposes the lowest tax rate. If you have a below average income, your selfish interest from an economic perspective is to vote for the party that favors the most redistribution. The altruistic votes are once again less extreme, this time particularly in the value dimension. This may suggest that

when individuals think of which values are best for society as a whole, they choose what the average person believes.

Figure 9: Political Compass - Standard Deviation



Note: Standard deviation of the selfish, actual, and altruistic votes in two political dimensions. 2011 and 2015 reflect the average location of votes in the these two elections. The p-values are from Levene’s test.

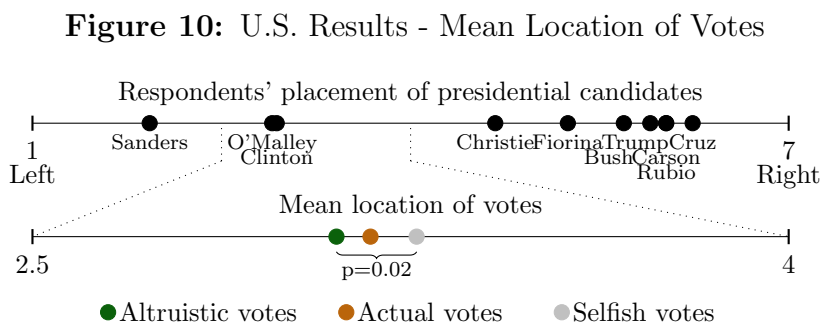
To sum up, the analysis gives the following four insights: 1) The actual votes align closely with the altruistic votes, indicating that the respondents vote more altruistically than selfishly. This suggests that if more people had voted altruistically, it would hardly have impacted the election outcome. This is in line with hypothesis 1 and implies that the inferior pattern discussed in the epigraph has no empirical leverage. 2) The selfish votes are much more right-winged, and the altruistic votes slightly more left-winged than the actual votes. This is in line with hypothesis 2 and suggests that individuals on average become more egalitarian when thinking about what is best for society. 3) The selfish votes are placed on more extreme candidates, while there is more agreement within the altruistic votes. Hence, the more altruistically individuals vote, the more consensus there will be among the selected candidates and, supposedly, the better equipped they will be to reach compromises. 4) The latter two results apply primarily to the economic dimension of politics; when individuals think about what is best for themselves or best for society they mostly refer to tax and redistributive policies.

5.3 Checking for External Validity with U.S. Data

One concern is that the results only apply to a Danish context. To check whether this is the case, a similar survey adapted to U.S. circumstances was conducted in October 2015. The U.S. arguably makes a most different case to the Danish democracy based on the size of the democracy, the two-party system, and the presidential system. In addition, the American electorate is less homogeneous and contains more varied views. The survey was conducted through Harvard University’s Digital Lab for the Social Sciences (DLABSS). In total 400 respondents took the survey. The pool of respondents is not representative of the U.S. electorate but rather comparable to online panels such as MTurk.

In a U.S. context, the two-party system may hide nuances between the selfish, altruistic, and actual choice. To deal with this issue, respondents were asked to select whom they would vote for among the presidential candidates at the time of the survey (fall 2015). This is naturally not how a ballot would look like, but it deals with the issue that partisanship likely generates only few changes across the two parties (Green *et al.*, 2004).

Each respondent was asked to place some of the candidates on a scale from 1 (extremely liberal) to 7 (extremely conservative). The top part of Figure 10 shows the mean location of a selection of the candidates. The bottom part compares the mean location of the respondents’ votes using this scale. As was the case in Denmark, the selfish votes are more to the right and the altruistic votes are more to the left. Due to the smaller sample, the power of this finding is less strong.

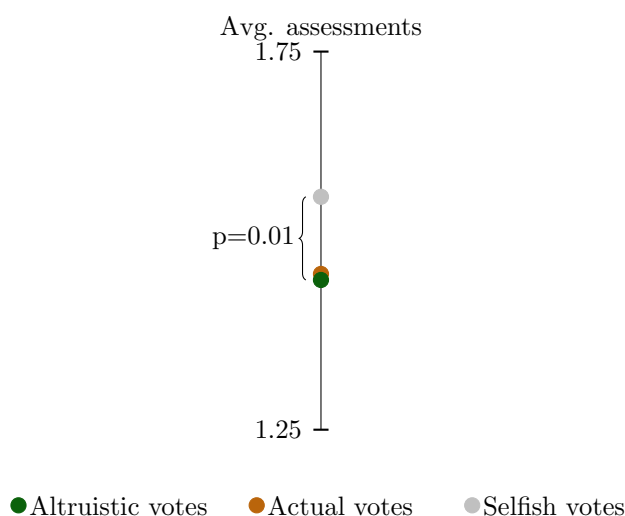


Note: The top part shows the location of the presidential candidates on a scale from 1 (extremely liberal) to 7 (extremely conservative) using the mean assessment by the respondents. Some candidates are omitted from the figure. The bottom part shows the mean location of the various votes based on the locations of the presidential candidates. The p-value is from a paired t-test. n=400.

Figure 11 compares the standard deviation of the votes. The selfish votes have the largest variance as was the case in Denmark.

Naturally, these findings are suggestive. Nevertheless, as they are congruent with the Danish findings, there does not seem to be great concerns about external validity. The fact that both countries move to the middle when voting non-selfishly suggests that the

Figure 11: U.S. Results - Standard Deviation of Votes



Note: Standard deviation of the respondents' actual, altruistic, and selfish votes using the average placements of the presidential candidates as taken from Figure 10. The p-value is based on Levene's test. $n=400$.

altruistic outcome is defined in relative terms rather than in absolute terms. In both countries individuals may think that the median voter represents what is good for the country, even though the median voter is very different in the two countries.

5.4 Robustness Checks

Another way to test how individuals' votes shift when voting selfishly and altruistically is by using their own assessment of where the political parties stand on the left-right wing scale. Using these locations one can detect if individuals choose a party more to the left or to the right *according to their own beliefs*. Figure A.1 in the Supporting Information does this for the Danish data. The results are very similar to the main results: the actual votes align closely to the altruistic votes, while the selfish votes are more left-winged and have a greater variance.

Bargsted and Kedar (2009) have shown that multiparty systems can be prone to strategic voting. If this drives the results, they are of less relevance for other elections. To indirectly check this, the respondents were asked if they would ever consider voting strategically (preceded by an explanation of what strategic voting is). Dividing the sample into two parts depending on the answer to this question, it is possible to check if the results for the ones that would not vote strategically are similar to the overall findings. Figure A.2 in the Supporting Information shows that the results for the sub-sample of respondents that would not vote strategically are in line with the overall results. This makes it unlikely that the results are driven by strategic voting. The findings for the sub-sample that would vote strategically are either insignificant or in line with the general results. The fact that

similar findings were found in the U.S. and Denmark even though the voters face very different strategic incentives in these two democracies also suggests that the results are not driven by strategic voting.

A concern with the postulated results is that people may vote altruistically but care for *more* than the society at large. Individuals that care about the environment, refugees, and global poverty may not constrain themselves to the welfare of the citizens of the society they live in when voting. Suppose for example that some voters think party A is best for society, but vote for party B because they think it is best for the world at large. In that case the analysis until now would falsely have classified these voters as voting non-altruistically. The respondents were also asked which party they would vote for if they were to consider what is best for the entire world. Obviously, more people had a hard time answering this question. Nevertheless, vote distributions have been reanalyzed for the respondents that answered all four questions in the Supporting Information. In general, votes for the world are much more left-winged than the societal altruistic votes, in particular in the value dimension. The standard deviation is quite comparable to the actual votes. Hence, votes for the world pull some people to parties on the far left-wing of the value dimension.

6 Conclusion

This paper analyzed whether the fact that some people vote altruistically and others selfishly matters for voting outcomes. This was tested by conducting a survey in Denmark ($n = 2000$) and in the U.S. ($n = 400$) where respondents were asked to identify (1) the party they would vote for if elections were held tomorrow, (2) the party they would vote for, if they only were to consider what is best for themselves, and (3) the party they would vote for if they were to consider what is best for society as a whole. The results showed that if more people had voted selfishly, the election outcome would have been more right-winged and extreme candidates would have garnered more votes. If more people had voted altruistically, the outcome would become a bit more left-winged and a bit more concentrated around the centrist choices.

The overall finding of this paper is therefore that it does in fact matter whether individuals vote for selfish reasons or for altruistic reasons. For political parties, this means that vote shares can be significantly increased if more people are compelled to vote for a different reason. The emerging question that arises from this paper is whether political candidates can capitalize on the duality of voting motivations. A number of studies have shown that framing can invoke altruistic attitudes and behavior in the form of preferences over the management of forest areas (Russell *et al.*, 2003), willingness to pay for conservation areas (Ovaskainen and Kniivilä, 2005), and willingness to pay for public goods in general (Ajzen *et al.*, 1996). It is uncertain if these findings map unto

voting behavior.

For policy makers the findings are important whenever policies are created on the bases of the electorate's preferences. Since individuals possess both altruistic and selfish preferences, and since these differ systematically, a policy maker has to determine which preferences to use. If altruistic preferences are used the suggested policies should be more left-winged than if selfish preferences are used.

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A Supporting Information

A.1 Questionnaire

Q1: Would you say that you are very interested in politics, somewhat interested in politics, only slightly interested in politics, or not at all interested in politics?

- Very interested
- Somewhat interested
- Only slightly interested
- Not interested at all

[new page]

Q2: Who would you vote for if general elections were held tomorrow?

- A: Social Democrats
- B: Social Liberal Party
- C: Conservative People's Party
- F: Socialist People's Party
- I: Liberal Alliance
- O: Danish People's Party
- V: Liberals
- Ø: Red-Green Alliance
- Å: The Alternative
- An independent candidate
- Another party
- I would cast a null vote
- I would not vote
- I am not eligible to vote
- Don't know

[If Q2 is answered 'I am not eligible to vote' → end of survey]

[If Q2 is answered 'Don't know' → Q2b]

[Else → Q3]

Q2b: Even though you are in doubt we would like to ask you if there is a party you are more inclined to vote for?

- A: Social Democrats
- B: Social Liberal Party
- C: Conservative People's Party
- F: Socialist People's Party
- I: Liberal Alliance
- O: Danish People's Party

- V: Liberals
- Ø: Red-Green Alliance
- Å: The Alternative
- An independent candidate
- Another party
- Don't know/still in doubt

[new page]

[Randomize order of Q3 and Q4]

Q3: Who would you vote for if you only were to consider what is best for yourself?

- A: Social Democrats
- B: Social Liberal Party
- C: Conservative People's Party
- F: Socialist People's Party
- I: Liberal Alliance
- O: Danish People's Party
- V: Liberals
- Ø: Red-Green Alliance
- Å: The Alternative
- An independent candidate
- Another party
- Don't know

[new page]

Q4: Who would you vote for if you were to consider what is best for society as a whole?

- A: Social Democrats
- B: Social Liberal Party
- C: Conservative People's Party
- F: Socialist People's Party
- I: Liberal Alliance
- O: Danish People's Party
- V: Liberals
- Ø: Red-Green Alliance
- Å: The Alternative
- An independent candidate
- Another party
- Don't know

[new page]

Q5: Who would you vote for if you were to consider what is best for the entire world?

- A: Social Democrats
- B: Social Liberal Party
- C: Conservative People's Party
- F: Socialist People's Party
- I: Liberal Alliance
- O: Danish People's Party
- V: Liberals
- Ø: Red-Green Alliance
- Å: The Alternative
- An independent candidate
- Another party
- Don't know

[new page]

Q6: Do you consider yourself a supporter of a particular political party?

- Yes, I consider myself a supporter of a particular political party
- No, I do not consider myself a supporter of a particular political party
- Don't know

Q7: Different people feel differently about voting. For some, voting is a duty - they feel they should vote in every election no matter how they feel about the parties. For others voting is a choice. For you personally, is voting mainly a duty, mainly a choice, or neither a duty nor a choice?

- Mainly a duty
- Mainly a choice
- Neither a duty nor a choice
- Don't know

Q8: Some people vote 'strategically'. That is, they vote for someone else than their preferred party in an attempt for their vote to have a bigger impact on the result of the elections. Would you vote strategically?

- Yes, I would vote strategically
- No, I would not vote strategically
- Don't know
- I rarely vote

Q9: People vote for different reasons. Some people vote mainly to influence the outcome of elections while others vote mainly to express their opinion. Why do you vote?

- Mainly to influence the outcome of elections

- Mainly to express my opinion
- Both
- Neither
- Don't know
- I rarely vote

[new page]

Q10: Have you ever donated blood?

- Yes
- No
- Don't know

Q11: To what extent do you agree or disagree that the economic inequality in the Danish society should be reduced?

- Very much agree
- Agree
- Neither agree nor disagree
- Disagree
- Very much disagree
- Don't know

Q12: In Denmark you get tax deductions for certain charitable donations. Did you receive such a tax deduction last year?

- Yes
- No
- Don't know

[new page]

Q13: Who did you vote for at the general elections the 18th of June 2015?

- A: Social Democrats
- B: Social Liberal Party
- C: Conservative People's Party
- F: Socialist People's Party
- I: Liberal Alliance
- O: Danish People's Party
- V: Liberals
- Ø: Red-Green Alliance
- Å: The Alternative
- An independent candidate

- Another party
- I cast a null vote
- I did not vote
- I was not eligible to vote

[new page]

Q14: In politics people often talk about left and right.

Where would you place yourself on this scale?

	0. left	1	2	3	4	5	6	7	8	9	10. right	DK
Yourself												

Q15: Where would you place the political parties?

	0. left	1	2	3	4	5	6	7	8	9	10. right	DK
A: Social Democrats												
B: Social Liberal Party												
C: Conservative People's Party												
F: Socialist People's Party												
I: Liberal Alliance												
O: Danish People's Party												
V: Liberals												
Ø: Red-Green Alliance												
Å: The Alternative												

[new page]

Now there will be some questions about politics in general. There can be many complicated questions in politics. Remember that it is always possible to answer 'don't know'.

Q16: Which parties formed the government in the months leading up to the general elections of 2015?

- A: Social Democrats
- B: Social Liberal Party
- C: Conservative People's Party
- F: Socialist People's Party
- I: Liberal Alliance
- O: Danish People's Party
- V: Liberals
- Ø: Red-Green Alliance
- Å: The Alternative
- Don't know

[new page]

Q17: How many members of parliament are there if we ignore the four from Greenland and the Faeroe Islands?

- Note: ----
- Don't know

[new page]

Now there will be some questions about you.

Q18: Are you male or female?

- Male
- Female

Q19: What year were you born (i.e. 1982)

- Note: ----

Q20: What is your zip code?

- Note: ----
- I live abroad
- Don't know

Q21: What is your highest completed education level?

- Primary education (i.e. 9th or 10th grade)
- Secondary education (i.e. regular high school or vocational high school)
- Vocational training (i.e. carpenter, health care assistant, nursery assistant)
- Shorter higher education (i.e. laboratory technician, educator, building technician)
- Medium higher education (i.e. teacher, nurse)
- Bachelor's degree (i.e. BSc, BA)
- Longer higher education (i.e. architect, MA, MD)
- Doctoral degree (i.e. PhD)
- Other
- Don't know

Q22: What description best matches your labor market status?

- Employee in the private sector
- Employee in the public sector
- Self-employed
- Student
- Retired/on early retirement benefits
- Unemployed

- Long-term sick
- On maternity or paternity leave
- Other

Q23: What is your yearly gross income?

- Less than 100.000 kr.
- 100.000-199.999 kr.
- 200.000-299.999 kr.
- 300.000-399.999 kr.
- 400.000-499.999 kr.
- 500.000-749.999 kr.
- 750.000-999.999 kr.
- 1.000.000 kr. or above
- Don't know / will not disclose

Q24: What is your household's yearly gross income?

- Less than 100.000 kr.
- 100.000-199.999 kr.
- 200.000-299.999 kr.
- 300.000-399.999 kr.
- 400.000-499.999 kr.
- 500.000-749.999 kr.
- 750.000-999.999 kr.
- 1.000.000 kr. or above
- Don't know / will not disclos

A.2 Derivation of Political Compass

DR and TV2 are the two major television networks in Denmark. Prior to the election of 2015 they asked all candidates running for parliament to answer the following questions (translated from Danish) on a 5-point scale from ‘completely disagree’ to ‘completely agree’ (*my labels added prior to the questions*).

TV2

- *Employment1*: More jobs should be created in the public sector
- *Employment2*: Politicians should do more to ensure that workers from other EU countries do not undercut Danish wages
- *Employment3*: The time required to be re-eligible for unemployment benefits should be lowered from 12 to 6 months
- *Health1*: It is economically necessary to introduce private fees in selected areas of the health sector.
- *Health2*: One of the main priorities for the hospitals should be to create a more coherent treatment of patients, whereby the same doctor and the same nurses follow the patient throughout the hospitalization
- *Health3*: Increased competition from the private sector makes the public health system perform better
- *Immigrants1*: The Danish policy towards immigrants is too strict
- *Immigrants2*: It should be easier than is the case today to expel immigrants/refugees, who have violated the criminal law
- *Immigrants3*: There should be more differentiation with regards to immigration than is the case today, such that it will be easier for certain nationalities to obtain residence permits than others
- *Social1*: Too many people are stuck with social transfers because the allowances are too high
- *Social2*: More economic support should be given to families with children than is the case today
- *Social3*: Economic inequality in the Danish society should be reduced
- *Social4*: The requirement of mutual dependencies for benefit recipients should be removed
- *Children1*: There is too large a focus on tests in the Danish primary school
- *Children2*: There should be a greater political focus on socially vulnerable families with children and less on well-functioning families than is the case today
- *Children3*: There should be a greater emphasis on discipline in day-care centers
- *Economy1*: In the long run it is economically necessary to introduce private fees in certain selected areas of the elderly care

- *Economy2*: The Danish level of wages is so high that it hurts the Danish economy
- *Economy3*: Public investments should increase in order to strengthen the economy
- *Economy4*: If the conditions for private companies improve, our competitiveness and the Danish economy will benefit
- *Taxes1*: The top marginal tax bracket should be maintained
- *Taxes2*: The property tax should be raised and the revenue should be used to lower the tax on labor
- *Taxes3*: There should be a differentiated VAT, such that for example healthy food will have a low VAT while other goods will have a much higher VAT
- *Foreign1*: Denmark should participate less in international military operations
- *Foreign2*: Denmark should increase its defense spending
- *Foreign3*: Development assistance should be lowered
- *Crime1*: Sentences for crimes involving violence should be increased
- *Crime2*: The age of criminal liability, which is 15 years today, should be lowered
- *Crime3*: There should be less emphasis on punishment and greater emphasis on rehabilitation in Danish law
- *Environment1*: Corporates' green taxes should be increased
- *Environment2*: Politicians should create incentives for more farmers to transition from traditional to organic animal breeding
- *Environment3*: It is an important political task to get Danes to recycle more than they do today
- *Environment4*: It benefits both the environment and the economy if there is a greater political emphasis on the transition to renewable energy than is the case today
- *EU1*: Denmark has given up too much power to the EU
- *EU2*: Denmark should abolish its opt-out on justice matters in the next election cycle
- *EU3*: In the long run Turkey should join the EU
- *Education1*: Students in primary schools should receive grades earlier than is the case today
- *Education2*: There should be more discipline in the primary schools
- *Elderly1*: More resources should be directed towards elderly care even if this means that other welfare areas will have to receive fewer resources
- *Elderly2*: The elderly care should be income adjusted such that wealthy elderly pay for some of the services they receive
- *Animals1*: Fur farming should be banned
- *Animals2*: The practice of keeping hens in cages should be banned

DR

- *Education3*: After the school reform, students have too long days at school
- *Taxes4*: The tax on cigarettes should be increased

- *Health4*: A visit to the general practitioner should cost e.g. 100 kr.
- *Elderly3*: More of the elderly care should be outsourced to private companies
- *Employment4*: The time required to be re-eligible for unemployment benefits should be decreased
- *Employment5*: Companies should be held accountable for whether their foreign sub-contractors in Denmark comply with Danish rules on wages, taxes and VAT or not
- *Taxes5*: Growth in the public sector is more important than tax cuts
- *Environment5*: Investment in public transportation should be given priority over investment to the benefit of private cars
- *Crime4*: The punishment for severe violence and rape must be increased
- *Economy5*: Unemployment benefits should be lowered such that the financial gains from working increase.
- *Immigrants4*: Public institutions in Denmark take religious minorities too much into consideration
- *EU4*: EU decides too much compared to Danish law
- *Foreign4*: The development aid should be lowered
- *Environment6*: Efforts to improve the environment should take priority over economic growth
- *Culture1*: The public subsidy for culture should be lowered

Political discourse in Denmark has it that Danish politics consists of two or three dimensions, these being an economic axis, a value axis (concerning issues such as immigration, environmentalism and crime), and an EU policy axis. To let the data speak for itself, Exploratory Factor Analysis (EFA) is used to get a qualified understanding of how many axes exist and which items load unto which axis. The most reasonable result has the three speculated factors. The resulting loadings using a promax rotation are displayed in Table A1. Only loadings over 0.6 and only questions with at least one loading above 0.6 are displayed. With a fourth factor only one question, *Children3*, has a loading above 0.5. As this question has little relevance in political discourse, three factors were deemed appropriate.

The pattern from the factor loadings highly resembles the expectations. Questions on employment, the economy, and health care load unto the economy factor, questions on crime, immigration, and the environment load unto the values factor, and questions on EU load unto the EU factor. A few tax questions load unto the values factor, but since these questions by and large concern value politics (such as whether cigarettes should be taxed), this is hardly surprising. Perhaps the only surprise is that an education question loads unto the EU factor. This question pertains to the assessment of a school reform,

Table A1: Factor Loadings from Exploratory Factor Analysis

Question	Factor 1 (economy)	Factor 2 (values)	Factor 3 (EU)
Employment1	0.80		
Employment2	1.00		
Employment3	0.77		
Employment4	0.80		
Employment5	0.82		
Social1	0.61		
Social3	0.73		
Social4	0.74		
Economy1	0.70		
Economy3	0.79		
Economy4		0.65	
Economy5	0.65		
Health1	0.92		
Health4	0.93		
Taxes1	0.73		
Taxes2		0.79	
Taxes4		0.61	
Taxes5	0.85		
Elderly3	0.82		
Children1		0.81	
Children3		0.63	
Crime1		0.87	
Crime2		0.68	
Crime3		0.86	
Crime4		0.82	
Environment1		0.78	
Environment5		0.72	
Environment6		0.73	
Foreign2		0.68	
Foreign3		0.73	
Foreign4		0.77	
Immigrants1		1.00	
Immigrants2		0.94	
Immigrants3		0.80	
Immigrants4		0.92	
Education1		0.63	
Education2		0.81	
Education3			0.78
EU1			0.84
EU2			0.87
EU3		0.74	
EU4			0.82

which the centrist parties favored and the more extreme parties opposed. This happens to be the divide of EU politics, and hardly anything more should be attributed to this finding.

A problem with the factor loadings is that they need not reflect the political importance and salience of the issues. To accommodate this, when calculating the factor scores for each of three factors, I weight the factor loadings with a measure of how important each question is. These weights are obtained from an opinion poll at the time of the election conducted by the same agency that was responsible for the TV2 candidate test. The weights reflect which topics the respondents found most important.

Table A2: Topic Weights

Topic	Weight
Health	0.30
Immigrants	0.29
Employment	0.22
Economy	0.21
Social	0.14
Elderly	0.14
Taxes	0.13
Children	0.13
Environment	0.10
Education	0.07
Animals	0.05
EU	0.04
Foreign	0.03
Crime	0.03

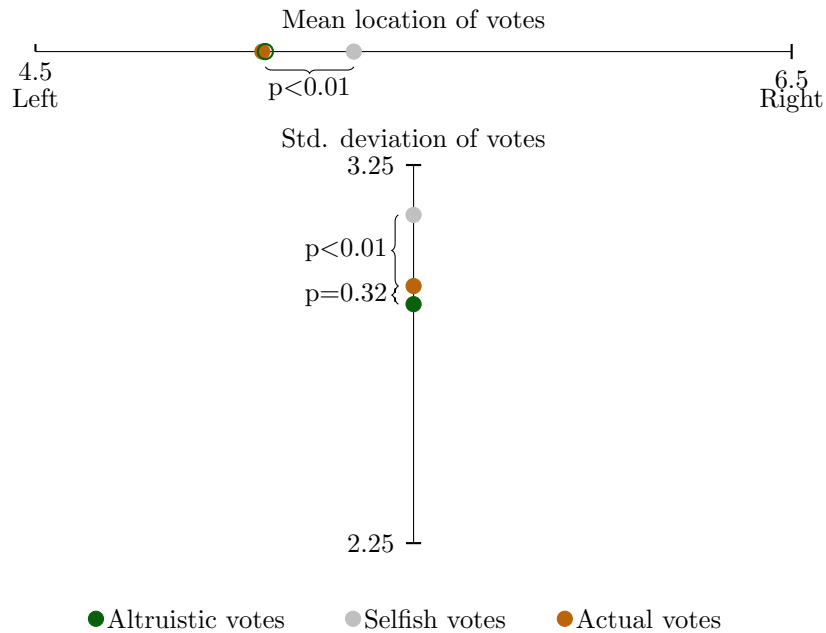
Note: Share of respondents in an opinion poll that thought specific topics were among the most important for the election. The numbers are obtained from <http://politik.tv2.dk/valg2015/2015-05-27-danskernes-valg-sundhed-og-hospitaler-er-det-vigtigste-tema>.

To obtain the final political compass showed in the main text, the resulting individual factor scores are standardized and party averages are taken from the two first factors.

A.3 Robustness Checks

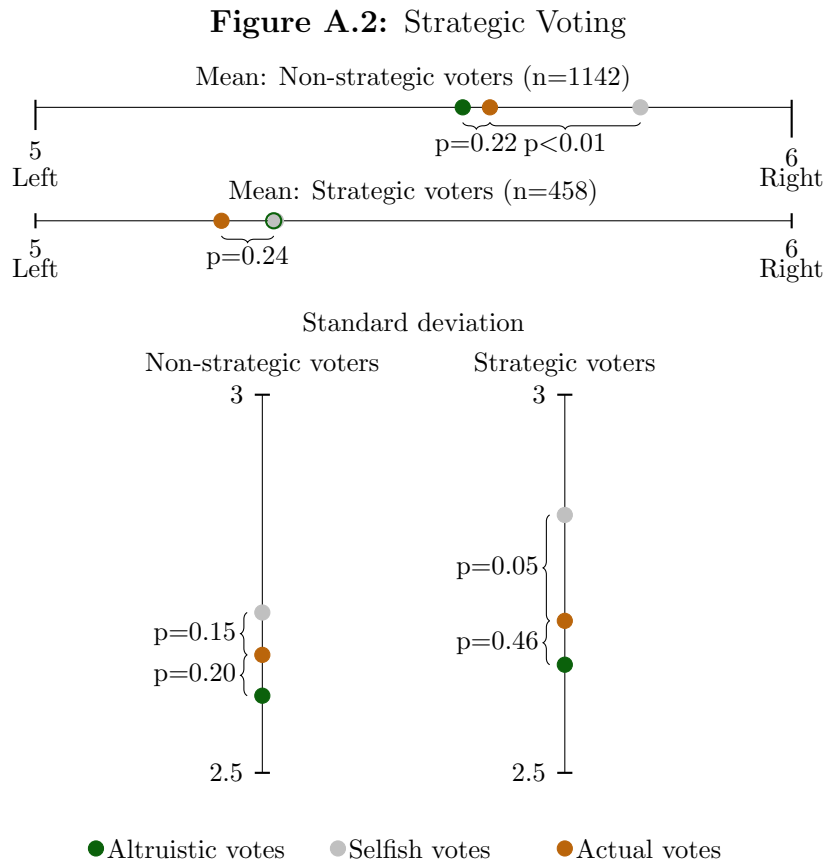
A.3.1 Using Subjectively Assessed Positions

Figure A.1: Using Subjective Scales



Note: Mean and standard deviation of respondents' actual, altruistic, and selfish votes based on where the respondents themselves located the party they were voting for on a scale from 0 (left) to 10 (right). The p-value in the upper part is from a paired t-test. P-values in the lower part are from Levene's test.

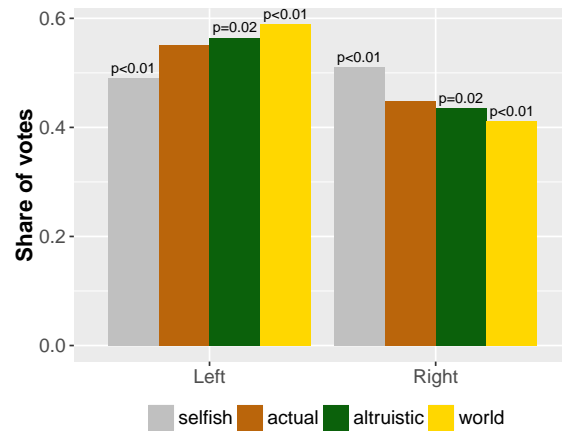
A.3.2 Accounting for Strategic Voting



Note: Mean and standard deviation of respondents' actual, altruistic, and selfish votes broken down by subgroups. *Non-strategic voters* answered negatively to a question of whether they would consider voting strategically. *Strategic voters* answered positively to this question. P-values in the upper part are from paired t-tests. P-values in the lower part are from Levene's test.

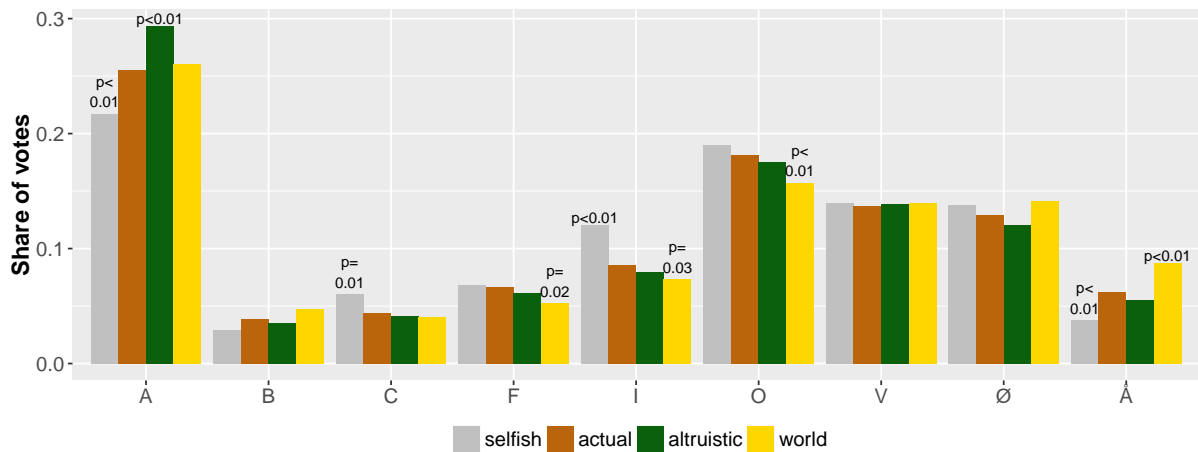
A.3.3 The World

Figure A.3: Distribution of Votes by Bloc



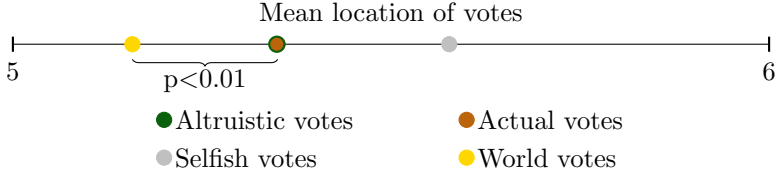
Note: Distribution of selfish, actual, altruistic, and world votes by political bloc. World votes are answers to the question ‘Who would you vote for if you were to consider what is best for the entire world?’ P-values indicate difference from the share of actual votes using McNemar’s test. $n = 1377$.

Figure A.4: Distribution of Votes by Party



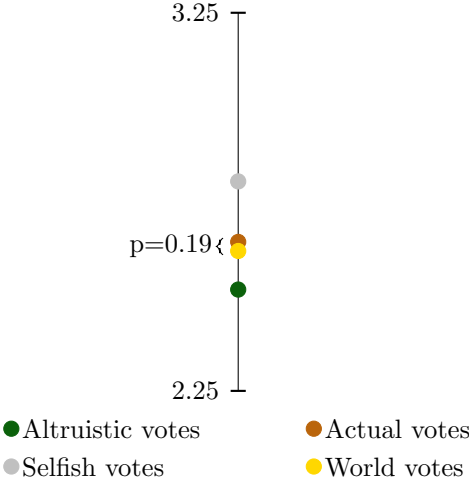
Note: Distribution of selfish, actual, altruistic, and world votes by political party. P-values indicate difference from the share of actual votes using McNemar’s test. $n = 1377$. A: Social Democrats, B: Social Liberal Party, C: Conservative People’s Party, F: Socialist People’s Party, I: Liberal Alliance, O: Danish People’s Party, V: Liberals, Ø: Red-Green Alliance, Å: The Alternative.

Figure A.5: Mean Location of Votes



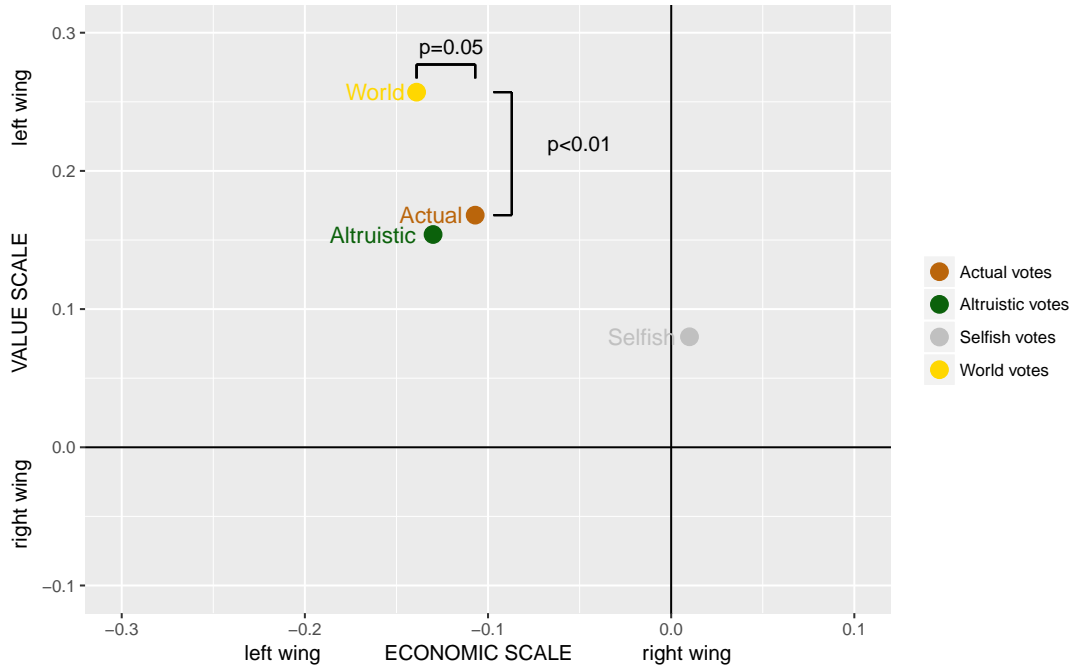
Note: Mean location of the respondents' actual, altruistic, selfish, and world votes. The p-values are from paired t-tests. n=1377.

Figure A.6: Standard Deviation of Votes



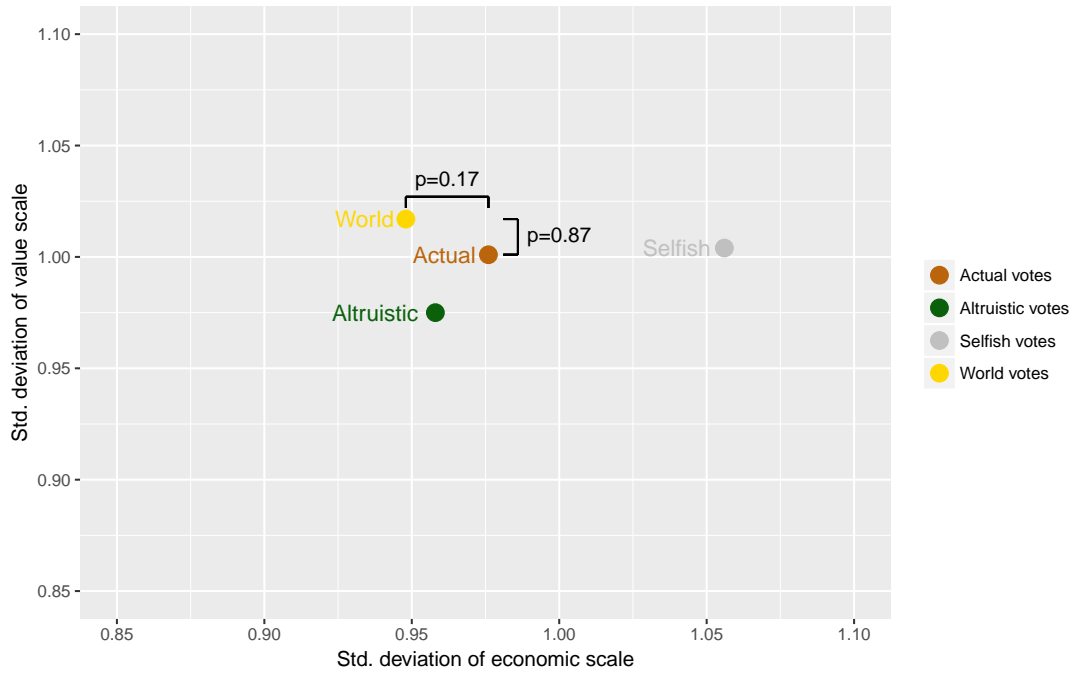
Note: Standard deviation of the respondents' actual, altruistic, selfish, and world votes. The p-value is from a Levene's test. n=1377.

Figure A.7: Political Compass - Means



Note: Mean location of the selfish, actual, altruistic and world votes in a two-dimensional political compass. P-values are from paired t-tests. $n = 1377$.

Figure A.8: Political Compass - Variance



Note: Standard deviation of the selfish, actual, altruistic, and world votes in a two-dimensional political compass. P-values are from Levene's test. $n = 1377$.