

Supplementary Materials

Measures of campaign negativity –comparing approaches and eliminating partisan bias

This online appendix is associated with the article 'Measures of campaign negativity –comparing approaches and eliminating partisan bias'. It comprises the following information that is referred to in the main article:

A1: Additional information with respect to content analysis of newspaper campaign coverage

A1.1: Characteristics of selected newspapers

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A1 Additional information with respect to content analysis of newspaper campaign coverage

A1.1 Characteristics of selected newspapers

Table A1 provides information about the six national newspapers whose coverage of the parties' election campaigns was coded and used in measures of the tone of the campaigns of these parties.

Table A1: Characteristics of Selected English Newspapers in the 2015 General Election Campaign

Newspaper	Declaration of Support	Circulation in '000s	Type
Daily Mail	Very Strong Conservative	1,631	Tabloid
Daily Mirror	Very Strong Labour	882	Tabloid
The Sun	Very Strong Conservative	1,858	Tabloid
The Daily Telegraph	Very Strong Conservative	486	Quality
The Guardian	Moderate Labour	176	Quality
The Independent	Weak Liberal Democrat/Conservative Coalition	59	Quality

Source: Cowley and Kavanagh (2016: 304)

A1.2 Identification of relevant newspaper articles

The newspaper articles that we coded were kindly made available to us by the research group 'Media in Context and the 2015 General Election' at the University of Exeter. The procedure that they used is described in detail by Stevens et al. (2016) and Banducci et al. (2017, 2018). They started with a sample of 11,000 articles from 17 national and local British newspapers. These were manually annotated to indicate whether or not they were about the election. These annotated articles were then used to train a supervised computational classifier, which subsequently identified election-focussed articles in the entire universe of over 400,000 articles published by these newspapers in the period from February 1 to May 7, 2015. From the thus identified articles about the election we used the subset of 5019 articles published by the six national newspapers during the formal campaign (from dissolution of parliament to polling day: 30 March - 7 May 2015).

A1.3 Details of content analysis procedure

The coding method is highly similar to the procedure developed by Geer (2006), and which has been used in many studies of campaign communications. This method is a fine-grained method that can in principle be applied to any kind of campaign communication. For our current study we adapted this method in two ways.

The first adaptation of this coding method was made to accommodate the existence of a multiparty system. In such systems formal or informal coalitions of parties may exist that become the object of critique in a particular party's campaign. Such critique is thus not directed to a single, specific party, but to a group of parties. In the case of the 2015 General Elections, this was

particularly the case for the incumbent coalition that consisted of Conservatives and Liberal Democrats. In addition, a group of parties can be the source of critique of another party.

The second adaptation is that we refrain from coding the complete newspaper articles; instead we code only quotes and paraphrases of parties and their spokespersons. The reason for this narrow selection of material to be coded is that we focus on parties' communicative behaviour in their election campaigns, and not on newspaper style or comments by third parties that are often also included in the content of campaign coverage, but that do not reflect the tone of a party's campaign. An additional reason for coding only quotes or paraphrases is that articles, and even sentences often contain both positive and negative campaign messages (Benoit et al., 2003; Geer, 2006). This focus on quotes and paraphrases was also made by Lau and Pomper (2004).

The unit of analysis is a natural speaking unit, the appeal, which is any mention of self-praise or criticism of the opponent. Negative campaigning is measured by coding any appeal as either negative (criticism of an opponent) or positive (self-praise of the party or politician) only in those cases where the critique or self-praise was explicit and manifest.

Assessing inter-coder reliability was based on double coding of randomly selected segments of the raw material, and expressed in Krippendorff's alpha (See Krippendorff 2013). The entire coding process consists of three elements, each of which was assessed separately in terms of reliability. The first concerns the identification of sentences in an article that contain quotes or paraphrases to be coded; reliability of this aspect was 0.91. The second aspect of coding concerns the identification of singular appeals within these sentences, here reliability was 0.58. The third aspect of coding concerns the coding of tone (negative versus positive) of appeals, here reliability was 0.86. These findings reflect a well-known phenomenon of complex coding schemes, namely that reliability varies across different aspects of the entire coding task. Overall, reliability is acceptable to good, and the somewhat lower reliability of the identification of singular appeals is unlikely to affect our resulting measures of campaign tone systematically, as it affects only the number of appeals coded separately, but not the coding of their tone.

A1.4 Distribution of codes across newspapers and political parties

Table A2 reports the number of appeals by the various parties that were reported (in the form of quotes or paraphrases) by the respective newspapers. Not surprisingly, the numbers are heavily skewed towards the two largest parties, with relatively little coverage of appeals from UKIP and, particularly, the Greens. The table also shows clear differences between the volume of coverage of appeals by parties, with two of the quality newspapers (Daily Telegraph and the Guardian) covering most extensively parties' utterances of critique (of other parties) or of self-praise. Yet the third of the quality newspapers, the Independent, covered less of such content than two of the tabloids (the Daily Mail and the Sun, respectively).

Table A2: Distribution of appeals over newspapers and political parties (row-wise percentages)

	Conservatives	Labour	Liberal Democrats	UKIP	Green	Total
Daily Mirror	14.7	71.6	9.8	3.5	0.4	100% (n=1562)
Daily Mail	57.4	28.3	8.1	5.7	0.5	100% (n=3162)
Daily Telegraph	54.4	27.0	8.8	8.2	1.6	100% (n=4485)
The Independent	30.6	42.9	17.9	6.2	2.4	100% (n=2016)
The Guardian	30.9	39.7	16.7	7.7	5.0	100% (n=5064)
The Sun	57.4	27.4	10.2	3.2	1.7	100% (n=2654)
Total	43.2	36.0	12.0	6.3	2.4	100% (n=18943)

Table A3 reports for each of the newspapers the percentage of party appeals covered by it that involved a focus of that party on its own policies and personalities (i.e., that consisted of ‘positive’ campaigning). Thus, 62.9 percent of all appeals by the Conservatives that were covered by the Daily Mirror, consisted of claims about themselves (i.e., were ‘positive’), the complement (37.1%) consisting of critique of policies or personalities of other parties (thus being ‘negative’). Here too, we see distinct differences between newspapers and between parties. Over all parties together, the Guardian focuses more on ‘positive’ appeals by parties than any other newspaper. At the same time, taking the coverage of all newspapers together, the campaign claims made by the Conservatives and reported in these six newspapers are least frequently ‘positive’ compared to the campaign claims made by other parties. Interesting as these differences are, they are not the focus of our study here and we refrain therefore from analysing them in depth. See for more information on this Walter 2019.

Table A3: percentage of party appeals covered by papers that are ‘positive’ in tone (that focus on own party) -- higher percentage reflects more ‘positive’ campaigning

	Conservatives	Labour	Liberal Democrats	UKIP	Green	Total
Daily Mirror	62.9	44.8	37.3	38.9	57.1	46.5
Daily Mail	52.9	71.7	60.8	75.6	93.8	60.3
Daily Telegraph	51.5	62.8	50.6	76.1	90.4	57.1
The Independent	60.1	53.2	60.0	76.0	93.9	58.9
The Guardian	67.8	65.3	62.1	76.0	91.8	67.7
The Sun	49.3	68.0	50.9	61.6	93.5	55.8
Total	55.5	61.1	56.6	73.3	91.5	59.6

A2 Additional information with respect to analysis of citizens' perceptions of campaign tone

Tables A4 and A5 report the distributions of responses to the survey question about the tone of parties' election campaigns, broken down by dummies representing party choice in the 2015 General Election. The question was formulated as follows:

'In their campaigns political parties can focus on criticizing the policies and personalities of other parties, or they can focus on putting forward their own policies and personalities. What is, in your view, the focus of the national campaign of the [fill in party name]?'

In England this question was asked for each of the following parties: Conservatives; Labour; Liberal Democrats; Greens; UKIP. Responses could be given on a 5-point scale: 1= 'focuses on criticizing the policies and personalities of other parties'; 5='focuses on putting forward their own policies and personalities'.

Both tables consist of sub-tables that contrast the responses of those who voted for the party whose perceived tone is reported. And those who did not vote for that party. In all sub-tables we find a strong difference between the responses of respondents voting for the party in questions and those not voting for it. In all instances these differences are highly significant ($p < .001$). For the sake of convenience, we added the mean of the response distribution for the respective groups of respondents.

The difference between Tables A4 and A5 pertains to the moment when the perceptions of campaign tone were asked. Table A4 reports responses to this question at the time of the election campaign itself (wave 5 of the British Election Study Internet Panel), while Table A5 reports responses to the identical question asked after the election (wave 6). For all practical purposes, the two tables show the same pattern of partisan bias: for all parties we find that those who voted for it perceive that party as campaigning much more on their own policies and personalities than how people perceive it who did not vote for it. This pattern is virtually the same when using as breakdown variable intended party choice (instead of party actually voted for).

Table A4: Perception (during the campaign – Wave 5) of parties' campaign tones by party voted for in 2015; response distributions and their means

perceived campaign tone of Conservatives

	1 (neg.)	2	3	4	5 (pos.)	Total	Mean
<i>Voted Conservative</i>	3.7	7.6	26.6	39.6	22.4	100% (6034)	3.69
<i>Voted not-Conservative</i>	37.9	24.7	19.6	11.1	6.7	100% (117370)	2.24
<i>Total</i>	26.3	18.9	22.0	20.8	12.1	100% (17771)	2.73

perceived campaign tone of Labour

	1 (neg.)	2	3	4	5 (pos.)	Total	Mean
<i>Voted Labour</i>	4.9	9.5	30.7	31.2	23.7	100% (5507)	3.59
<i>Voted not-Labour</i>	32.3	29.0	24.4	10.2	4.1	100% (12324)	2.25
<i>Total</i>	23.8	22.9	26.4	16.7	10.2	100% (17831)	2.66

perceived campaign tone of Liberal Democrats

	1 (neg.)	2	3	4	5 (pos.)	Total	Mean
<i>Voted Liberal Democrat</i>	4.7	8.7	30.1	37.4	19.1	100% (1469)	3.58

<i>Voted not-Liberal Democrat</i>	20.3	21.9	34.8	16.3	6.6	100% (15424)	2.67
<i>Total</i>	19.0	20.8	34.4	18.1	7.7	100% (16893)	2.75

perceived campaign tone of UKIP

	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Voted UKIP</i>	2.6	3.6	13.5	25.8	54.4	100% (2370)	4.26
<i>Voted not-UKIP</i>	25.9	16.9	20.3	19.2	17.8	100% (14914)	2.86
<i>Total</i>	22.7	15.1	19.4	20.1	22.8	100% (17284)	3.05

perceived campaign tone of Greens

	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Voted Green</i>	2.2	3.5	14.6	33.6	46.1	100% (922)	4.18
<i>Voted not-Green</i>	15.5	15.1	25.4	23.4	20.7	100% (14032)	3.19
<i>Total</i>	14.7	14.4	24.7	24.0	22.2	100% (14954)	3.25

Note: total n=19123, totals deviating from this reflect DK responses to the questions about campaign tone.

Table A5: Perception (after the election – W6) of parties' campaign tones by party voted for in 2015; Response distributions and their means

perceived campaign tone of Conservatives

	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Voted Conservative</i>	1.9	6.8	25.6	42.5	23.3	100% (6092)	3.78
<i>Voted not-Conservative</i>	24.8	18.8	21.7	22.5	12.2	100% (17858)	2.27
<i>Total</i>	24.8	18.8	21.7	22.5	12.2	100% (17858)	2.78

perceived campaign tone of Labour

	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Voted Labour</i>	5.4	11.9	32.8	30.3	19.6	100% (5522)	3.47
<i>Voted not-Labour</i>	29.5	31.8	25.6	9.4	3.8	100% (12339)	2.26
<i>Total</i>	22.0	25.6	27.8	15.8	8.7	100% (17861)	2.63

perceived campaign tone of Liberal Democrats

	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Voted Liberal Democrat</i>	4.1	10.1	32.8	36.1	16.8	100% (1498)	3.51
<i>Voted not-Liberal Democrat</i>	18.6	22.9	34.9	16.6	7.0	100% (15652)	2.71
<i>Total</i>	17.3	21.8	34.7	18.3	7.9	100% (17150)	2.78

perceived campaign tone of UKIP

	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Voted UKIP</i>	2.3	3.6	12.6	26.9	54.5	100% (2387)	4.28

<i>Voted not-UKIP</i>	23.1	16.6	22.0	20.9	17.4	100% (15059)	2.93
<i>Total</i>	20.3	14.8	20.7	21.7	22.5	100% (17446)	3.11

perceived campaign tone of Greens

	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Voted Green</i>	0.7	2.8	13.6	35.1	47.7	100% (948)	4.26
<i>Voted not-Green</i>	12.5	13.9	26.2	24.9	22.5	100% (14405)	3.31
<i>Total</i>	11.8	13.2	25.4	25.5	24.0	100% (15353)	3.37

Note: total n=19123, totals deviating from this reflect DK responses to the questions about campaign tone.

As reported in the main article, partisan bias of parties' perceived campaign tones goes beyond party choice in the election. When using propensity to vote scores for a party (PTVs) as a measure of the electoral attractiveness of that party, we find that the perceived positivity of the campaign tone of a party increases monotonely (and close to linearly) with the electoral attractiveness of that party, as demonstrated by Figure A1.¹ In this figure we have combined the relevant information across all five parties (Conservatives, Labour, Liberal Democrats, UKIP and Greens); the equivalent figures for each of the parties separately (not displayed here) are virtually indistinguishable from this overall figure. Figure A1 is based on data from wave 5 of the panel study; the equivalent figure for wave 6 (not displayed here) shows the same pattern.

¹ The so-called PTV questions is formulated as follows: "How likely is it that you would ever vote for each of the following parties?" The question was asked (in England) for each of the five parties included in our analyses, and the responses could be given on scale from 0 ("very unlikely") to 10 ("very likely"). For further information on the interpretation and measurement characteristics of such questions see van der Eijk et al (2006) and Van der Eijk (2018).

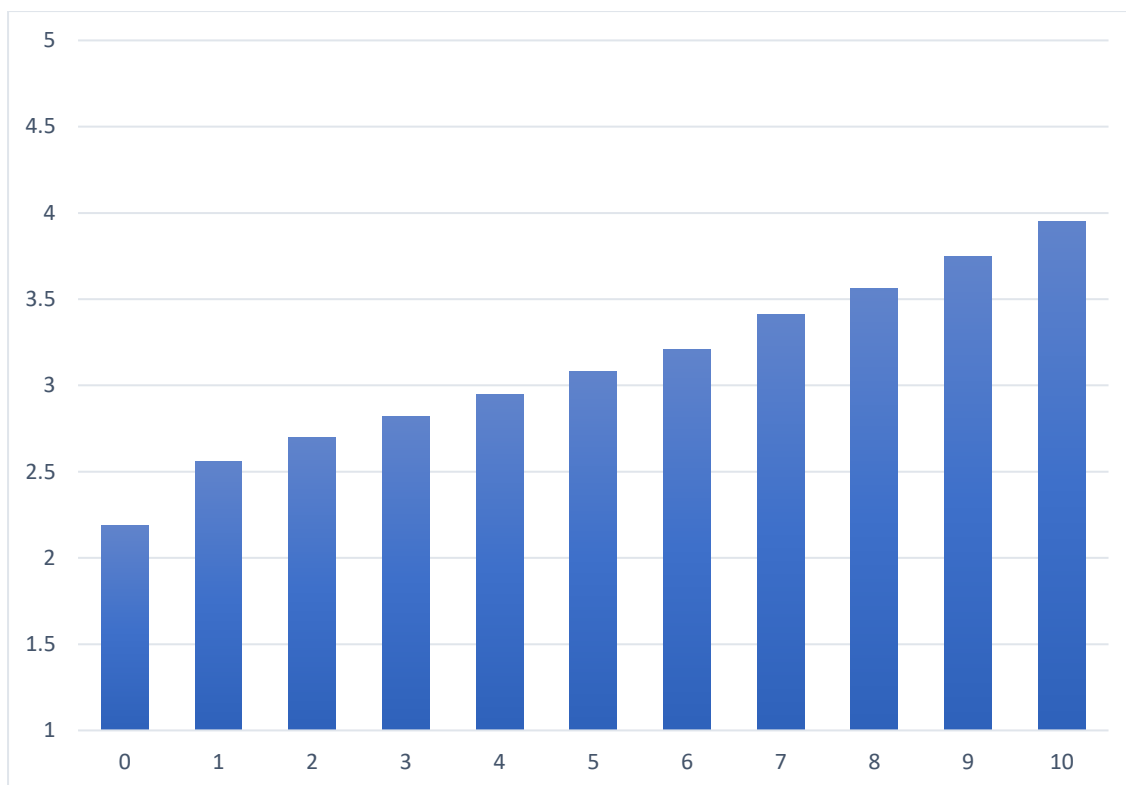


Figure A1: Mean perception of a party's perceived campaign tone by electoral attractiveness of that party, combined across all parties

Perceived campaign tone on vertical axis (1=campaign focus on critique of other parties; 5= campaign focus on own party); electoral attractiveness on horizontal axis (measured by PTV, 0=very unlikely to ever vote for this party; 10=very likely to ever vote for this party); data Wave 5 of British Election Study Internet Panel

A3 Additional information with respect to analysis of expert judgements of campaign tone

Table A6 reports the distribution of experts' judgements of the tone of parties' election campaigns, broken down by dummies representing the party for which the expert acted as election agent. The question was formulated as follows:

'In their campaigns political parties can focus on criticizing the policies and personalities of other parties, or they can focus on putting forward their own policies and personalities. What is, in your view, the focus of the national campaign of the [fill in party name]?'

In England this question was asked for each of the following parties: Conservatives; Labour; Liberal Democrats; Greens; UKIP. Responses could be given on a 5-point scale: 1= 'focuses on criticizing the policies and personalities of other parties'; 5='focuses on putting forward their own policies and personalities'.

Table A6 consists of sub-tables that contrast the responses of those who represented the party whose tone is judged and those who did not represent that party. In all sub-tables we observe a strong partisan difference between the judgements of these two groups of experts (as is most

immediately visible in the summary of the distributions by their means). In all instances these differences are highly significant ($p < .001$).

Table A6: Expert Judgement of parties' campaign tones by party represented by expert as election agent; response distributions and their means

<i>judged campaign tone of Conservatives</i>							
	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Represented Conservatives</i>	1.5%	7.1%	15.3%	30.6%	45.4%	100% (196)	4.11
<i>Did not represent Conserv.</i>	31.7%	29.8%	19.9%	11.3%	7.2%	100% (697)	2.32
<i>Total</i>	25.1%	24.9%	18.9%	15.6%	15.6%	100% (893)	2.72
<i>judged campaign tone of Labour</i>							
	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Represented Labour</i>	1.4%	3.9%	19.5%	46.8%	28.4%	100% (282)	3.97
<i>Did not represent Labour</i>	23.8%	29.3%	27.0%	15.0%	4.9%	100% (608)	2.48
<i>Total</i>	16.7%	21.2%	24.6%	25.1%	12.4%	100% (890)	2.95
<i>judged campaign tone of Liberal Democrats</i>							
	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Represented Liberal Democrat</i>	0.8%	3.6%	17.3%	44.2%	34.1%	100% (249)	4.07
<i>Did not represent Liberal Democrat</i>	18.2%	22.7%	34.9%	17.5%	6.7%	100% (578)	2.72
<i>Total</i>	12.9%	16.9%	29.6%	25.5%	15.0%	100% (827)	3.13
<i>judged campaign tone of UKIP</i>							
	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Represented UKIP</i>	2.4%	1.2%	4.1%	23.5%	68.8%	100% (170)	4.55
<i>Did not represent UKIP</i>	28.8%	22.8%	23.3%	18.1%	7.0%	100% (670)	2.52
<i>Total</i>	23.5%	18.5%	19.4%	19.2%	19.5%	100% (840)	2.93
<i>judged campaign tone of Greens</i>							
	<i>1 (neg.)</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5 (pos.)</i>	<i>Total</i>	<i>Mean</i>
<i>Represented Green*</i>	*	*	*	*	*	*	*
<i>Did not represent Green</i>	7.8%	11.4%	22.4%	36.2%	22.3%	100% (791)	3.54
<i>Total</i>	7.8%	11.4%	22.4%	36.2%	22.3%	100% (791)	3.54

Note: total $n=968$, totals deviating from this reflect DK judgements about campaign tone.

*: The English subsample of this study (which we use here) contained no experts who represented the Greens as election agent

For the election agents we used the same procedure to eliminate partisan biases from the judgements as we used for the respondents of the British Election Study Internet Panel, and which was described above. The only difference is that we do not have PTV scores for the election agents,

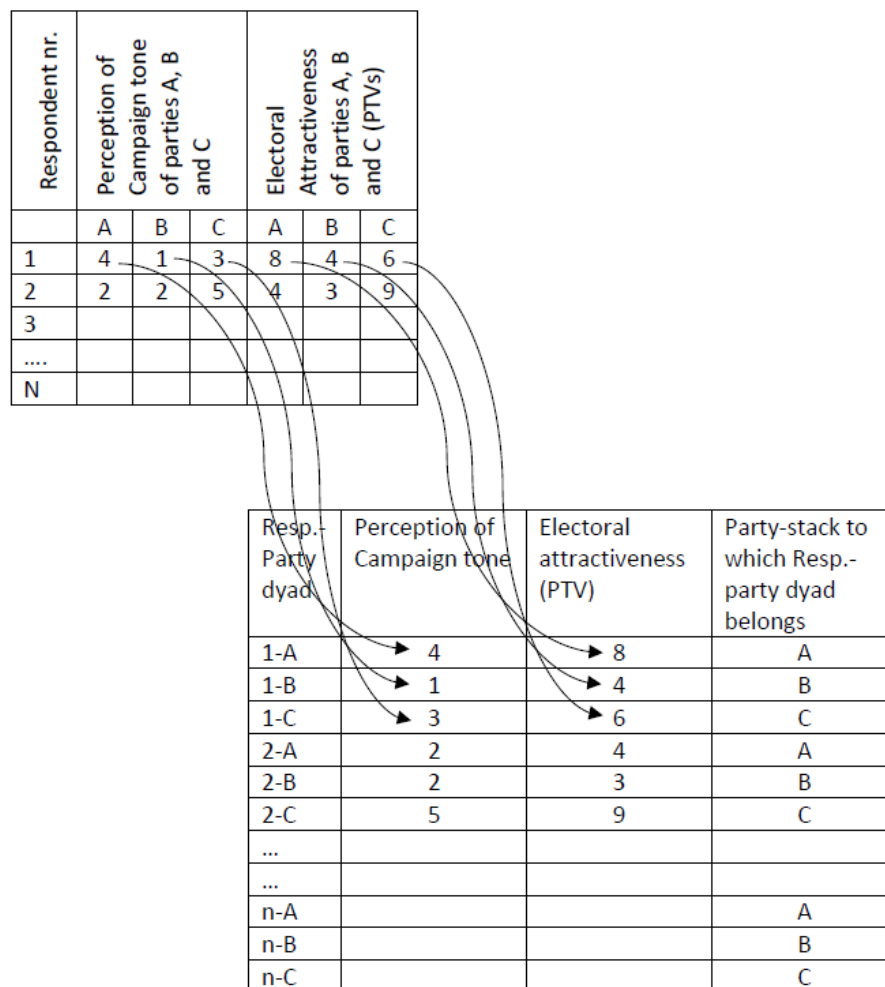
and that we used instead stacked dummies of the party they represented in their capacity of election agent.

A4 Details of procedure to adjust perception of campaign tone for partisan bias

As explained in section 8 of the main text, adjusting for partisan biases is accomplished on the basis of a regression analysis of campaign tone on partisan orientations in a ‘stacked’ datamatrix. Figure A1 illustrates the stacking procedure; to avoid an unnecessarily cluttered figure, we restricted ourselves in this figure to just 3 parties, but the logic is obviously the same for the 5 parties that competed in the 2015 general Election in England.

In a regular datamatrix the responses are recorded per person, and the questions about the campaign tones as separate variables (one for each party). In the stacked datamatrix the responses about parties’ campaign tones are organized as a single variable, which requires the rows of the datamatrix to be defined in terms of respondent-party dyads. A similar procedure transforms the separate variables for partisan orientations in the regular datamatrix (PTVs in our case) into a single variable in the stacked datamatrix.

Figure A1 Illustration of restructuring of a regular to a stacked datamatrix



In the stacked datamatrix perceptions of campaign tone are regressed on partisan orientations (i.e., the electoral attractiveness of parties, as expressed in scores to PTV questions). The residuals of this analysis are the component of perceptions of campaign tones that are independent of the partisan orientations that were used as independent variable. The mean of these residuals is zero, but the means belonging to a particular party stack are not zero. These residuals can therefore be regarded as perceptions from which partisan biases have been eliminated (note that the logic of this distinction between ‘useful’ and ‘contaminated’ variance components is analogous to that in an instrumental variable analysis, with the main difference that we focus here on the unexplained variance). When using these individual perceptions to characterize a political party, all that is required is to average the residuals within each of the party stacks, which then yield an aggregate measure of parties’ campaign tone from which partisan bias has been eliminated.

This use of stacked data has become well-established over the past decades in the field of analysis of non-ipsative party preferences (for details see van der Eijk et al. 2006; van der Eijk 2018), but it is equally applicable in the case at hand where respondents have provided various kinds of information (perceptions and partisan orientations) about the same parties.

A5 Additional information with respect to the comparison of eight measures of parties’ campaign tone

Table A7 presents the scores of each of the five parties on each of the eight measures of campaign tone discussed in the article. The measures based on newspaper campaign coverage consist of percentages of coded party appeals that were identified in the newspaper in question that reflect ‘positive’ campaigning by the respective party. For the perceptions of citizens and judgements of election agents the measures consist of the average of the individual perceptions or judgements after adjustment for partisan biases (the procedure for doing this has been discussed in section A4 of this online appendix). To express these different measures in a common metric, we standardised them, so that for each measure the average of the campaign tone of all parties is 0, and the standard deviation of the parties’ scores is 1.

Table A7: Scores of English parties on different measures of the tone of their campaigns for the 2015 General Election (each measure standardised to mean=0 and st.dev.=1)

	Conservatives	Labour	Liberal Democrats	UKIP	Green
Daily Mirror	1.45	-0.34	-1.08	-0.92	0.88
Daily Mail	-1.29	0.05	-0.73	0.33	1.64
Daily Telegraph	-0.97	-0.23	-1.03	0.65	1.59
The Independent	-0.58	-1.05	-0.59	0.50	1.72
The Guardian	-0.45	-0.69	-0.99	0.32	1.80
The Sun	-0.96	0.21	-0.86	-0.19	1.80
Citizen perceptions (a)*	-0.76	-1.26	-0.22	0.76	1.48
Expert judgements (a) *	-0.88	-0.63	-0.14	-0.29	1.93
Citizen perceptions (r)*	-0.57	-1.13	-0.57	0.66	1.62
Expert judgements (r) *	-1.21	-0.38	0.28	-0.45	1.76

*: Measures indicated as ‘(a)’ have been adjusted to eliminate partisan bias; measures indicated as ‘(r)’ have not been adjusted for partisan bias.

A6 References

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