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Article

## Losing in the Polls, Time Pressure, and the Decision to Go Negative in Referendum Campaigns

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### Abstract

Why do parties and candidates decide to go negative? Research usually starts from the assumption that this decision is strategic, and within this framework two elements stand out: the prospect of electoral failure increases the use of negative campaigning, and so does time pressure (little remaining time to convince voters before election day). In this article, we contribute to this framework by testing two new expectations: (i) political actors are more likely to go negative when they face unfavourable competitive standings *and* voting day is near; and (ii) they are less likely to go negative when they faced a substantive degradation in their competitive standing over the course of the campaign. We test these expectations on a rich database of newspaper ads about national referenda in Switzerland and provide preliminary empirical evidence consistent with those expectations. The results have important implications for existing research on the strategic underpinnings of campaigning and political communication.

### Keywords

anxiety; advertisement timing; competitive standing; direct democracy; polls; strategic behaviour; Switzerland; negative campaigning

### Issue

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### 1. Introduction

Negative campaigning—that is, the use of messages intended to attack political rivals instead of promoting one’s own ideas and record—matters. Existing evidence suggests that the use of attacks during election campaigns have a wide range of effects, for instance on voters’ information memorability and information search (Lau, 1982; Lau & Redlawsk, 2015), election outcomes (Lau & Pomper, 2004), turnout (Ansolabehere & Iyengar, 1995; Nai, 2013), support and affect for the attacker and the sponsor (Banda & Windett, 2016), issue ambivalence and vote consistency (Lanz & Nai, 2015; Nai, 2014), political “mood” and cynicism (Yoon, Pinkleton, & Ko, 2005), and so forth. Research on *what drives* parties and can-

didates to “go negative” also has flourished in recent years (Nai & Walter, 2015). This research starts from the assumption that the decision for competing parties to attack their rivals is strategic, and that they operate a trade-off between benefits (e.g., degraded evaluation of the opponent in the eyes of the voters, or reduced mobilization of undecided voters potentially in favour of the opponent) and costs (potential “backlash” effects, such as reduction in support for the sponsor in the eyes of the voter, as these latter usually dislike negative messages).

In deciding whether to go negative, two elements are particularly relevant: the competitive standing of actors, that is, if they are facing the prospect of electoral failure (or are instead ahead in the race); and the advertisement timing, that is, how much time is left before election

day. Existing literature shows that unfavourable standings drive the use of attacks (e.g., Skaperdas & Grofman, 1995; Walter, van der Brug, & van Praag, 2014). Strong evidence also exists that as the election day draws near, the frequency of negative messages increases substantially (e.g., Freedman & Goldstein, 2002; Haynes & Rhine, 1998; Ridout & Holland, 2010). We still, however, lack systematic evidence about how these two major drivers interact and, more specifically, about how the *dynamics* of competitive standings affect the use of attack messages (however see Blackwell, 2013). Do unfavourable competitive standings create even stronger incentives to go negative at the end of the campaign? And what happens when a party faces a substantive loss of popular support over the campaign? With this in mind, we discuss and test two new expectations: 1) political actors are more likely to go negative when they are lagging behind in the polls and election day is near (*frantic loser hypothesis*); and 2) political actors are *less* likely to go negative when they faced a substantive degradation in their competitive standing over the course of the campaign (*anxiety hypothesis*). Do competing candidates “plan all of their rallies, write all of their speeches, and film all of their advertisements at the beginning of a campaign, then sit back and watch them unfold until Election Day? Clearly this is absurd” (Blackwell, 2013, p. 504).

Our article contributes to the emerging literature assessing the dynamics of election campaigns, starting from the assumption that competing parties and candidates adjust their strategies based on the evolution of the information they are exposed to.

We test our dynamic expectations on a rich database of campaign ads published in newspapers before federal referenda in Switzerland between 1999 and 2012. Comparing with the USA, undoubtedly the most studied case when it comes to negative campaigning, trends for Switzerland will probably represent a conservative estimate. Referenda are different than elections, as competition is not between opposing candidates but between camps supporting opposing policy proposals. This, as we argued elsewhere (Nai, 2013), probably makes that “character assassinations” are less frequent than in (first-past-the-post) elections. Second, Swiss election campaigns are still not fully professionalized, nor “Americanized” (Marquis & Bergman, 2009); Swiss campaigns rarely rely on consultants, spin-doctors or opposition research techniques, which have been shown to increase the use of negative advertising (Geer, 2012). Third, culturally, whereas in the USA negativity is endemic to the political game, in Switzerland political attacks are decidedly less frequent and at odds with the deep-rooted tradition of consensual agreements and cordial decision-making and governance (but see Hänggli & Häusermann, 2015). Fourth, voting via postal ballots in the weeks before the election is very common in Swiss referenda, which implies that a non-negligible share of the electorate is *de facto* uninfluenced by campaign dynamics because they already voted. Nonetheless, the share of undecided

voters making up their minds at the very last minute—who have been shown to be particularly affected by election campaigns (Nai & Walter, 2015)—is still important, and thus there is no reason to believe that campaign dynamics should not play a major role in Switzerland as well, albeit probably a subdued one in international comparison. Indeed, we are not the first to have studied campaign dynamics in Swiss referenda. For instance, evidence exists that intense referendum campaigns increase the interest and mobilization of voters (Kriesi, 2005; Marquis & Bergman, 2009) and are more likely to affect voting choices (Sciarini & Tresch, 2011); at the same time, campaigns are able to alter the nature of the media debate, as the content of media frames about the referenda tends to reflect issue framing by the campaigns (Hänggli & Kriesi, 2010). More recently, some studies have assessed more specifically the use of negative campaigning techniques in Swiss referendum campaigns (e.g., Bernhard, 2012; Lanz & Nai, 2015; Nai, 2013, 2014, 2015; Nai & Sciarini, 2018). However, to the best of our knowledge, this article is the first attempt at studying the dynamics of competitive standing in polls and use of negative campaigning during referenda, in Switzerland and elsewhere.

Political attacks can broadly be classified into two main types: *person-based* and *policy-based* attacks (e.g., Benoit, 1999; Lau & Pomper, 2004). Policy attacks focus on the shortcomings of the opponents’ program, record or policy propositions, whereas character attacks focus on the opponents themselves—their persona, character, profile, and even physical attributes (“ad hominem attacks”). In this article we focus on character attacks, for two reasons. First, from a logistical standpoint, it makes little sense to study the presence and effects of policy attacks in a direct-democratic setting; the very nature of referendum campaigns is all about criticizing policy propositions of the opposing camp (Nai, 2013). Second, from a theoretical standpoint, personal attacks are more likely to generate backlash effects (Budesheim, Houston, & DePaola, 1996; Carraro & Castelli, 2010), probably because citizens dislike them even more than policy attacks (e.g., Fridkin & Kenney, 2011; Nai & Walter, 2015). Thus, personal attacks potentially provide a fertile ground to test our new hypotheses, which all start from the premise that actors strategically assess the chances of a potential backlash before going negative.

## 2. Competitive Standing, Advertisement Timing, and the Chances to Go Negative

Why do parties and candidates decide to run negative campaigns? Modern campaigns are supported by a professional apparatus. It relies on public opinions consultants, internally-run opinion polling, media consultants, research and analysis divisions, fundraising consultants, opposition research to uncover dirty business of opponents and disliked candidates, multimedia consultants, social media specialists, and so forth (see, e.g., Plasser,

2000). This creates a situation in which the decision to “go negative” is by all likelihood a *strategic one*, and political actors weigh uncertain benefits against potential costs when deciding whether to attack their opponents (Lau & Pomper, 2004). On the benefits side, political actors “go negative” in an attempt to attract undecided voters or to diminish positive feelings for opposing candidates or parties, thus indirectly increasing their popular support (Budesheim et al., 1996; Lau, Siegelman, & Rovner, 2007). On the costs side, running excessively negative campaigns is considered to be a potentially dangerous strategy, as attacks are unpopular and generally disliked by the public (Fridkin & Kenney, 2011). Thus, attackers face the risk that their messages will “backlash” and generate negative feelings towards them instead of towards the target (Garramone, 1984; Johnson-Cartee & Copeland, 1991; Roese & Sande, 1993).

Within this strategic framework, two elements stand out as particularly relevant: the competitive standing of competitors, that is, if they are lagging behind or are ahead in the race; and the advertisement timing, that is, how much time in the campaign is left to attract voters (or scare voters away from the opposite camp). First, the *competitive standing* of parties and candidates (Haynes & Rhine, 1998) is a good predictor for the chances they will run negative campaigns. Pre-election polls are a central component of the “horserace” framing in political journalism (e.g., Broh, 1980; Iyengar, Norpoth, & Hahn, 2004), but their direct effect on election results is still debated. Some scholars argue that identifying a winner in polls acts as a powerful heuristic to motivate undecided voters to support a candidate likely to win in the election, thus not wasting their vote (bandwagon effect; Marsh, 1985), in which cases opinion polls can be seen as “self-fulfilling prophecies” (Rothschild & Malhotra, 2014); others argue instead that polls can provide a boost for the loser, as people tend to like “underdogs” (Vandello, Goldschmied, & Richards, 2007). Whatever their direct effect on voters, it is incontestable that pre-election polls provide vital information to campaigners to (re)shape their communication strategies. The prospect of electoral failure has been shown to trigger incentives for attack politics (Harrington & Hess, 1996; Skaperdas & Grofman, 1995; Walter et al., 2014). Positive campaigning is principally used to attract and entice voters, whereas:

Negative campaigning is used to reduce the support of the opponent...[Thus], the one lagging behind in the polls has not succeeded in attracting undecided voters and, therefore, has to scare off the opponent’s voters to stand a better chance. (Elmelund-Præstekær, 2010, p. 141)

In addition, actors lagging behind have little to lose—and much to gain—from a negative strategy. They are, therefore, more willing to bear the risk of “backlash effect”, i.e., the risk that negative campaigning might “scare off”

voters in the attacker camp (Brooks & Murov, 2012; Walter, 2012). By contrast, actors who are expected to succeed are less likely to rely on negative campaigning: As potential winners they feel much more concerned by the possible backlash effect; for them, the cost-benefit calculation should result in a risk-averse strategy.

Second, the advertisement *timing* is also a good predictor of the tone of the campaign: as the election day draws near, the frequency of negative messages is likely to increase (Damore, 2002; Haynes & Rhine, 1998; Freedman & Goldstein, 2002; Ridout & Holland, 2010). The rationale for this is threefold. First, parties and candidates run campaigns to inform voters about their propositions, which should strategically come first:

At the outset of a campaign, it may be more effective for candidates to provide voters with information about who they are and what issues are important to them. If candidates attack early, they are unable to define themselves to voters because all they are communicating is negative information about their opponents. (Damore, 2002, p. 672)

In this sense, attacks are more likely to appear towards the end of the campaign, in order to increase voters’ support once they are saturated with positive information (Damore, 2002; Elmelund-Præstekær, 2011; Peterson & Djupe, 2005). Second, as a consequence of the first rationale, negative campaigning should be more effective when the parties and candidates are considered credible on the issues at stake. Thus, “by waiting to go negative until after they have established themselves in the mind of voters, candidates may be perceived as more credible, which may increase the veracity of their attacks” (Damore, 2002, p. 673). Third, late negativity could be especially efficient to capture the attention of the batch of voters who make up their mind at the very last moment. Many undecided voters wait until the last moment to make a decision vote, and negative campaigns have been shown to be particularly effective on undecided voters. Recent research has confirmed that these dynamics also exist in direct democratic contests (Nai & Sciarini, 2018). Thus:

*Hypothesis 1:* Unfavourable competitive standings increase the use of negative advertising.

*Hypothesis 2:* Little remaining time before the vote increases the use of negative advertising.

### 3. The Dynamic Effects of Competitive Standing and Advertisement Timing: Two New Expectations

The strategic relevance of losing in the polls and time pressure for the use of negative campaigning is backed by strong scientific evidence across different countries, electoral systems, and types of contests. However, the existing literature usually relies on static causal inferences where the determinants and the decision to go nega-

tive are measured at a single point in time (however see Blackwell, 2013). To the best of our knowledge, no existing study has been able to show that the strategic decisions of going negative as a result of a negative competitive standing (i.e., losing in the polls) has a dynamic component and is a function of the advertisement timing.

In this article, we propose and test two new expectations about the dynamics between advertisement timing and an unfavourable competitive standing: i) the *reinforcing interaction* between competitive standing and advertisement timing; and ii) the effect of a negative *evolution of competitive standing* over time. Our overall argument can be summarized as follows: during the course of the campaign, competing actors are *more* likely to go negative when they are lagging behind in the polls and election day is close (*frantic loser hypothesis*). This should always be the case, *unless* they faced a substantive loss in poll support; in such a case, we argue that the anxiety resulting in being confronted with a worsening competitive standing makes them adopt a more risk-free approach (*anxiety hypothesis*). We disentangle these two new hypotheses below.

First, we expect unfavourable competitive standing to play an even greater role when time is running out. Ice hockey games provide a good example for this; as per standard regulations, each competing team can, at any time during the game, “pull the goalie” (i.e., remove that player from the ice) in exchange for an extra attack player. In doing so, the team sacrifices defence over offense: they increase their chances to score, but face at the same time a greater risk as they are, after all, playing with a defenceless net. This scenario, quite frequent in USA and European competitions, is a good example for us here because this “reckless” strategy is usually implemented (i) by the losing team, and (ii) at the end of the game. Another reason why the scenario is a good fit for our case is that sport teams and electoral campaigns have in common highly professionalized managers. In both cases, strategic considerations based on risk-averse principles are likely to guide future actions. In both cases, those who make these decisions face a changing environment and have to adapt their strategies. Both are aware of the advantages and risks of more aggressive strategies. Thus, it should come as no surprise that riskier strategies are undertaken by losers only when no other solution exists. This should incite, strategically, to go negative only as a means of last resort, and especially when risks of backlash are irrelevant because of an already negative standing. Thus:

*Hypothesis 3:* Negative advertising is especially likely in case of unfavourable competitive standings at the end of the campaign (*frantic loser hypothesis*).

Second, what happens as the competitive standing of parties and candidates evolves over time? More specifically, is the use of negative advertising influenced by unfavourable new polls? As for the *frantic loser hypothesis* (H3), this second dynamic also takes into account the

interaction between competitive standing and advertisement timing. In this case, we expect an effect of an unfavourable evolution in the polls *during the campaign*. More specifically, we expect that *losing support* in the polls over the course of the campaign has a *detrimental* effect on the use of negative campaigning. The rationale for such expectation comes from the *emotional* effects of new and surprising information on decision making and, more generally, social and political behaviour. The Affective Intelligence Model (Marcus, 2002; Marcus & MacKuen, 1993; Marcus, Neuman, & MacKuen, 2000), on which we base our assumptions, describes two fundamental emotional systems that work in parallel, depending on the specific situation that individuals are confronted with (MacKuen, Marcus, Neuman, & Keele, 2007). First, the *disposition* system “generates enthusiasm/satisfaction or depression/frustration as incoming information reports that the execution of one’s plans either matches or does not match expectations (or success)” (Brader, 2006, p. 60).

Second, the *surveillance* system “generates anxiety/unease or relaxation/calm as incoming information suggests it is either safe or potentially unsafe to go about one’s business as usual” (Brader, 2006, p. 60). The surveillance system is activated when individuals face new and surprising information, which directly generates unease and anxiety. In our case, this should happen when political actors face a drastic drop in their popular support expressed in pre-electoral polls.

The effects of anxiety on decision-making are largely known: anxiety triggers more careful behaviors, thus potentially reducing the use of aggressive campaign techniques. Anxiety “causes individuals to become more aware of their surroundings, in particular, novel or threatening circumstances [and] stimulates a desire to more fully understand and analyze the source of a potential threat” (Steenbergen & Ellis, 2006, p. 111). Even more important for our purpose is that anxiety has been shown to increase risk perception and risk aversion (Huddy, Feldman, Taber, & Lahav, 2005; Lerner & Keltner, 2001). Anxiety might produce “a sense of uncertainty and lack of control that elevates future judgments of risk [...while also increasing] perceived risk because it heightens the salience of self-relevant negative thoughts” (Huddy et al., 2005, p. 595). If new and threatening information leads to anxiety, and if anxiety leads to a higher chance of adopting risk-averse strategies, then it seems logical to expect that actors who face a drastic loss in public support are more likely to be afraid of backlash effects, thus perhaps thinking twice before going negative. This should be a function of the magnitude of the support lost between polls: the higher the support lost, the higher the anxiety felt, thus the higher the chances of adopting risk-averse strategies, and the *lower* the chances of going negative. Of course, polling results are subject to a great deal of interpretation when it comes to anticipating a final outcome based from them. Furthermore, it is a well-known phenomenon in Swiss

referenda that many proposals (especially popular initiatives) are affected by a steady erosion of support over the course of the campaign—which is undoubtedly something that campaigners are aware of and are able to anticipate. Nonetheless, we believe that an argument can be made that even with this in mind campaigners are never shielded from negative surprises when it comes to competitive standings, and that facing a sudden drop in support is very likely to affect the strategic considerations about the content of campaign messages. Thus:

*Hypothesis 4:* A negative evolution in competitive standings leads to lower chances of using negative advertising over the course of the campaign (anxiety hypothesis).

It is important to note that we assume the evolution of competitive standing (H4) as having more profound effects than the interaction between losing and timing (H3). Parties and candidates whose competitive standing deteriorates should be *less* likely to go negative *even when* they are losing in the polls and time is running out. The literature highlighting the prevalence of emotional reasoning over rational and conscious reasoning provides the argument. Emotional experiences (in our case, anxiety) have a structuring effect on cognitive processes (in our case, the decision to go negative or not; Damasio, 1994). “[T]he weight of opinion in psychology has shifted to a view that these unconscious evaluations are far more active, and hence far more important, than conscious cognitive processing” (Marcus, 2000, p. 231). Especially during decision-making processes, affective evaluations and cognitive processes are two sides of a same process (Nai, Schemel, & Marie, 2017), and rational thinking depends on prior emotional evaluations. In other words, underlying emotions are more important than higher rational reasoning. The two new hypotheses can thus be articulated as follows: actors are more likely to go negative when they are lagging behind in the polls and voting day is near (H3), *unless* they faced a substantive degradation in their competitive standing over the course of the campaign, in which case they are less likely to go negative, *ceteris paribus* (H4).

#### 4. Data and Measures

Political commercials on TV and radio are banned in Switzerland. Although political commercials can be broadcasted elsewhere (e.g., in cinemas and online) the culture of campaigning in Switzerland leads to parties and candidates usually not relying on those type of advertising in elections or referenda. In this context, newspapers ads are virtually the only option for political actors to campaign through mass media and are one of the most important campaign instruments for political parties and interest groups, as well as one of the main sources of information for Swiss voters (Kriesi, 2006). In addition, newspaper ads are a reliable indicator of the

intensity, direction, and frame of direct democratic campaigns in Switzerland (Nai, 2013; Sciarini & Tresch, 2011). In this article we rely on a comprehensive database of all campaign ads published in six Swiss newspapers for all national referenda that have taken place in Switzerland between 1999 and 2012, which includes 121 legal or constitutional amendments (see full list in Appendix). We selected six major Swiss newspapers: *Tribune de Genève*, *Le Temps* (French), *Neue-Zürcher Zeitung*, *Tages-Anzeiger* (German), *Regione*, and *Giornale del Popolo* (Italian). Given the fragmentation of Swiss media market along distinct linguistic regions, two newspapers for each of the three main languages were selected. These newspapers are approximately representative of the main ideological cleavages in each linguistic region (e.g., for the Italian-speaking region the *Regione* has a center-left editorial line, whereas the *Giornale del Popolo* is usually considered to be center-right). For these newspapers we collected and content-coded all ads published over the four weeks before each vote between 1999 and 2012. We collected and coded more than 10,000 ads, each of them recommending either supporting or rejecting the amendments. Due to missing data for pre-ballot polls (see below), our analyses are run on a subsample of 67 referenda, for which approximately 7,000 newspaper ads were identified. A manual coding of all ads was undertaken, where we identified for each ad the use of “negative” messages where the ad sponsor explicitly criticized their opponents. If one or more of such attacks were present, the ad was qualified as “negative” (Nai, 2013; Nai & Sciarini, 2018). The dependent variable is thus binary, where 1 measures the presence of one or more personal attack(s) in the ad. Table A1 in the Appendix lists the percentage of ads with personal attacks for each referendum in our database.

We use representative pre-ballot polls to evaluate the competitive standing of actors (Haynes & Rhine, 1998). For this, we rely on the polls conducted by the Swiss Broadcasting Corporation (*Schweizerische Radio- und Fernsehgesellschaft*, henceforth SRG) the most important and widely-circulated poll for referenda in Switzerland. The data are gathered through surveys on random samples of Swiss citizens (see Nai & Sciarini, 2018). The SRG polls are conducted twice before each vote: national trends for the first survey are published six weeks before the vote, whereas trends for the second survey are published two weeks before the vote. Based on these trends, we measure competitive standing comparing the relative support for the “yes” and “no” camps (undecided voters are excluded); ads supporting the camp with the lowest relative score are classified as being in the losing camp, and whereas ads with the higher relative share of support in polls are coded as being in the winning camp. Based on the two polls, three variables are created: the first measures competitive standing for the first poll (six weeks before the vote), the second measures competitive standing for the second survey (two weeks before the vote), and the third

measures the average competitive standing during the whole campaign (average for both surveys).

Furthermore, comparing the two surveys allows us to measure the *evolution* of competitive standing. By subtracting for any given camp the share of support in the second survey from the share of support in the first survey, we have a direct measure of the relative loss (or gain) in support during the campaign. As an example, the “yes” camp during the popular initiative “For democratic naturalisations”, launched by the far-right Swiss People’s Party (*Schweizerische Volkspartei*, henceforth SVP) and voted in June 2008, was supported by 48% of voters in the first survey (thus being virtually in the winning camp, if we take into account that 15% of voters were still undecided), but only supported by 33% of voters in the second survey, two weeks before the vote. The “yes” camp for that initiative thus lost 15% between the two surveys (48–33%) and was virtually the losing camp after the second survey.

SRG pre-ballot polls are available only for a subset of votes. Over the 121 referenda voted on in Switzerland between 1999 and 2012, SRG polls are available only for 69; furthermore, for six votes out of those 69 only the first survey wave (six weeks before the vote) is available. Our analyses will be run only on the subsets of referenda for which pre-ballot polls are available. The Appendix specifies for which referenda the SRG poll data are available.

Based on the day the ad was published in press we can calculate the time remaining between the publication of the ad and the voting day; in our models, we use a variable that differentiates between the week in which the ad was published (either first, second, third, or fourth and last week of the campaign), which provides a valid proxy of the time pressure the actors are facing when publishing their ads. This variable, in conjunction with the variable measuring competitive standings (losing in the polls) will be used to test for our new H3. The timing of the different data sources used in the article is illustrated in Figure 1. As the figure shows, the first SRG survey (6 weeks before the vote) establishes the benchmark in terms of winners and losers used during the first half of the “campaign” measured in our newspaper ads data; we assume that the decision to go “negative” during the first

half of the campaign is driven by the knowledge of competitive standings (that is, who is ahead and which camp is lagging behind) provided by this first survey. Half-way during this “campaign”, two weeks prior to the vote, the second SRG survey changes the dynamics by re-assessing who the frontrunners (potential winners) and losers are at that specific point in time. It is the change between the two surveys, two weeks before the vote, that drives most of the dynamics of (negative) campaigning studied in this article.

Our models include several controls intended to take into account the specific nature of (Swiss) referenda, as well as additional dimensions of the “race”. First, we control for the direction of the ad (i.e., whether the ad supports the “yes” or the “no” camp), which has been shown to partially affect the use of negative advertising (Nai, 2013), and include a variable that discriminates between popular initiatives—bottom-up instruments through which any group can put any issue on the political agenda, and which usually generate more negative campaigns and are less successful (Nai, 2013)—and referendums, called in reaction to an amendment of the law or Constitution by the elites. Controlling for these two factors simultaneously allows us to also control, indirectly, for whether the actor is part of the “challenger” coalition—i.e., endorsing the “no” camp in a popular initiative implies endorsing the camp promoting the status quo against the constitutional challenge. Furthermore, our models control for the presence of personal endorsements of the ad (i.e., whether or not the ad is explicitly endorsed by a public figure, such a politician); good reasons exist to expect anonymous (i.e., not personally endorsed) ads to be more negative, as anonymity uncouples the attacker from potential backlash effects (Brooks & Murov, 2012; Nai & Sciarini, 2018). Finally, our models control also for the referendum issue (domestic v. foreign policy), and for overall turnout; the latter is intended as proxy of general saliency of the vote and indirectly controls for the fact that negativity could naturally be higher when the public perceives that the issues at stake are important (which usually translates into higher turnout). Descriptive statistics for all variables in our models are presented in Table 1.

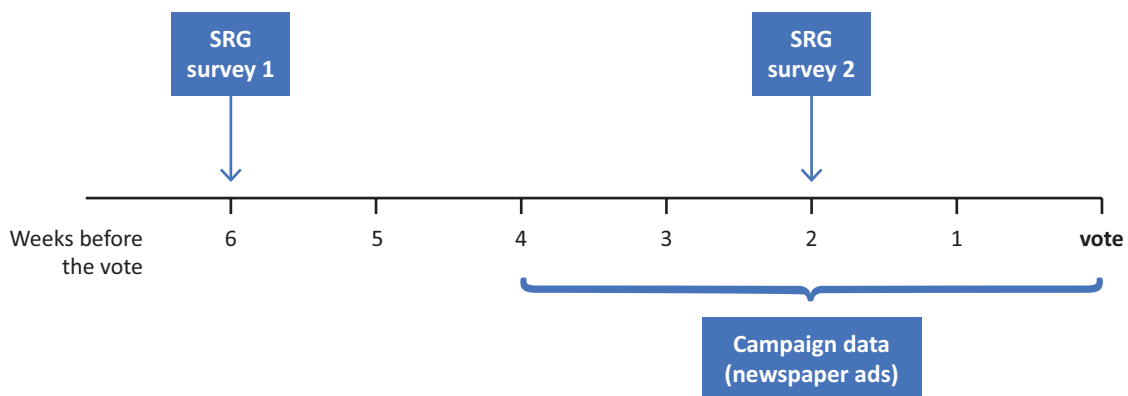


Figure 1. Data and timing of the vote.

**Table 1.** Descriptive statistics.

	N	Mean	Std. dev.	Min	Max
Personal attacks in ad <sup>a</sup>	6,741	0.10	0.30	0.00	1.00
Losing in polls <sup>b</sup>	6,741	0.46	0.50	0.00	1.00
Total support lost <sup>b</sup>	5,718	-0.02	0.08	-0.28	0.23
Week <sup>a</sup>	6,741	2.62	1.05	1.00	4.00
Explicit endorsement in ad <sup>a</sup>	6,741	0.32	0.47	0.00	1.00
Ad supports YES vote <sup>a</sup>	6,741	0.52	0.50	0.00	1.00
Popular initiative <sup>a</sup>	6,741	0.41	0.49	0.00	1.00
Turnout <sup>a</sup>	6,741	47.04	5.81	35.84	58.43
Foreign policy issue <sup>a</sup>	6,741	0.33	0.47	0.00	1.00

Notes: <sup>a</sup> Own dataset. <sup>b</sup> SRG survey results; gfs.bern.

## 5. Analyses and Results

Our data have a hierarchical structure, where ads are nested within specific referenda. We thus rely on two-level models where the likelihood to use personal attacks in any given ad (our dependent variable) is regressed on determinants at both the ad and context levels. As the dependent variable is binary we use hierarchical generalized linear models with logit transformations.

Our models are able to go beyond the problem of “single-shot” causal inference, biased because causes and actions are measured in a given single time-point (Blackwell, 2013, p. 505). We take into account the fact that surveys are made public *before* the publication of ads in newspapers (thus ensuring that the time causality is respected through a naturally lagged independent variable). We are not interested in the effect of negative advertising on election results (or on the evolution of competitive standings during the campaign), but on the reasons *why* actors decide to go negative. Thus, our models should not excessively suffer from *posttreatment bias* (i.e., the fact that negativity in earlier phases of the campaign might influence poll results; Blackwell, 2013). Even assuming the worst case scenario in which this happens massively (poll results during the campaign are strongly driven by previous campaign tone), the subsequent behaviour of actors should not be dramatically affected for two reasons: i) actors are not *aware* if the evolution in polls is due to their previous campaign strategies and thus their behaviour should not be endogenously biased; and ii) referendum campaigns are made up of a *multitude of different actors*, unlike electoral races, and thus the causal link between any given ad and subsequent poll results for the side they support (yes vs. no) is tenuous at best.

Table 2 shows, first, that the prospect of electoral failure and advertisement timing significantly affect the use of negative advertising. The direct effect of losing in the poll is quite strong, and significantly positive at  $p < .001$  (M1). *Ceteris paribus*, facing a negative competitive standing uncouples parties from the Damocles’ sword of potential backlash effects, which increases the appeal of negative advertising. This confirms trends in

the USA and beyond (e.g., Damore, 2002; Elmelund-Præstekær, 2010; Harrington & Hess, 1996; Skaperdas & Grofman, 1995; Walter et al., 2014).

Also, *ceteris paribus*, when election day draws near political ads are more likely to go negative; ads published during the last week are significantly more negative than ads published during the first week of the campaign (reference category). This is in line with what has been found in several studies (e.g., Damore, 2002; Haynes & Rhine, 1998; Peterson & Djupe, 2005; Ridout & Holland, 2010). The first model, thus, confirms the effects already known in the literature concerning the direct effect of competitive standing and advertisement timing (H1 and H2), thus acting as initial benchmark for our additional hypotheses (H3 and H4).

Model M2 presents a first test for the joint effect of losing in the polls and advertisement timing, via an interactive term between the two. The interaction effect is significant at  $p < .05$ , but its magnitude is quite small, as substantiated in Figure 2 via marginal effects.

Models M3 and M4 present additional tests for the joint effect of losing in the polls and advertisement timing. We expected that the simultaneous presence of unfavourable polls and time pressure would trigger the use of personal attacks even more substantively. We expected, in other terms, that losers tend to become *frantic* when time is running out. Model M3 is run only on ads published within the first two weeks of the campaigns (respectively 4 and 3 weeks before the vote), and thus published after the first SRG poll, but before the second. We expect that ads published in this first half of the campaign are affected by the first survey only. Model M4 is very similar, but run only on ads published in the last two weeks in the campaign (2 and 1 weeks before the vote), and thus just after the second SRG poll. We might thus expect that ads published in the last two weeks of the campaigns are especially affected by results of this second poll. Using another sport metaphor, one can think about those two models as follows: M3 estimates a more aggressive behaviour for the losing side during the first half of the game; M4 estimates the same, but for the second half of the game. The fact that models M3 and M4 are run on subsamples of ads is the reason why these mod-

**Table 2.** Use of personal attacks by competitive standing and advertisement timing.

	Whole campaign						First two weeks of campaign			Last two weeks of campaign		
	M1 OR	(Se)	Sig	M2 OR	(Se)	Sig	M3 OR	(Se)	Sig	M4 OR	(Se)	Sig
Intercept	0.00	(0.01)	**	0.00	(0.01)	**	0.08	(0.21)		0.01	(0.01)	**
Losing in polls	2.02	(0.27)	***	3.34	(9.92)	***						
Losing in polls (survey 1) <sup>a</sup>							1.38	(0.36)				
Losing in polls (survey 2) <sup>b</sup>										1.63	(0.27)	**
Week <sup>c</sup>												
— second	0.95	(0.14)		1.06	(0.16)							
— third	1.16	(0.16)		1.46	(0.26)	*						
— fourth (and last)	1.34	(0.18)	*	1.89	(0.41)	**						
Losing * week				0.83	(0.7)	*						
Endorsement	0.31	(0.04)	***	0.31	(0.04)	***	0.33	(0.07)	***	0.28	(0.05)	***
Ad supports YES vote	0.85	(0.11)		0.85	(0.11)		0.59	(0.15)	*	0.81	(0.14)	
Turnout	1.05	(0.04)		1.05	(0.04)		0.97	(0.06)		1.05	(0.04)	
Popular initiative	1.84	(0.80)		1.82	(0.80)		3.33	(1.85)	*	1.29	(0.49)	
Foreign policy	2.72	(1.61)	†	2.73	(1.62)	†	5.18	(3.94)	*	2.23	(1.07)	†
Log Likelihood	-1782			-1780			-729			-1032		
Rho	0.40	(0.07)		0.40	(0.07)		0.45	(0.08)		0.28	(0.07)	
N (ads)	6,741			6,741			2,956			3,211		
N (projects voted)	67			67			65			58		
N per group (min/avg/max)	3/100.6/327			3/100.6/327			1/45.5/161			2/55.4/193		

Notes: \*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1. <sup>a</sup> Pre-ballot survey 1 published six weeks before voting day. <sup>b</sup> Pre-ballot survey 2 published two weeks before voting day. <sup>c</sup> Reference category is first week of campaign (4 weeks prior to voting day). Dependent variable is the presence of negativism in the ad (binary variable), random effects logistic regressions run with Stata 14.1. Coefficients are odds ratios, standard errors in parentheses. Model M1 run for ads published during the whole campaign (four weeks prior to voting day). Model M2 run only for ads published during the first two weeks of the campaign (respectively four and three weeks prior to voting day). Model M3 run only for ads published during the last two weeks of the campaign (respectively two and one weeks prior to voting day).

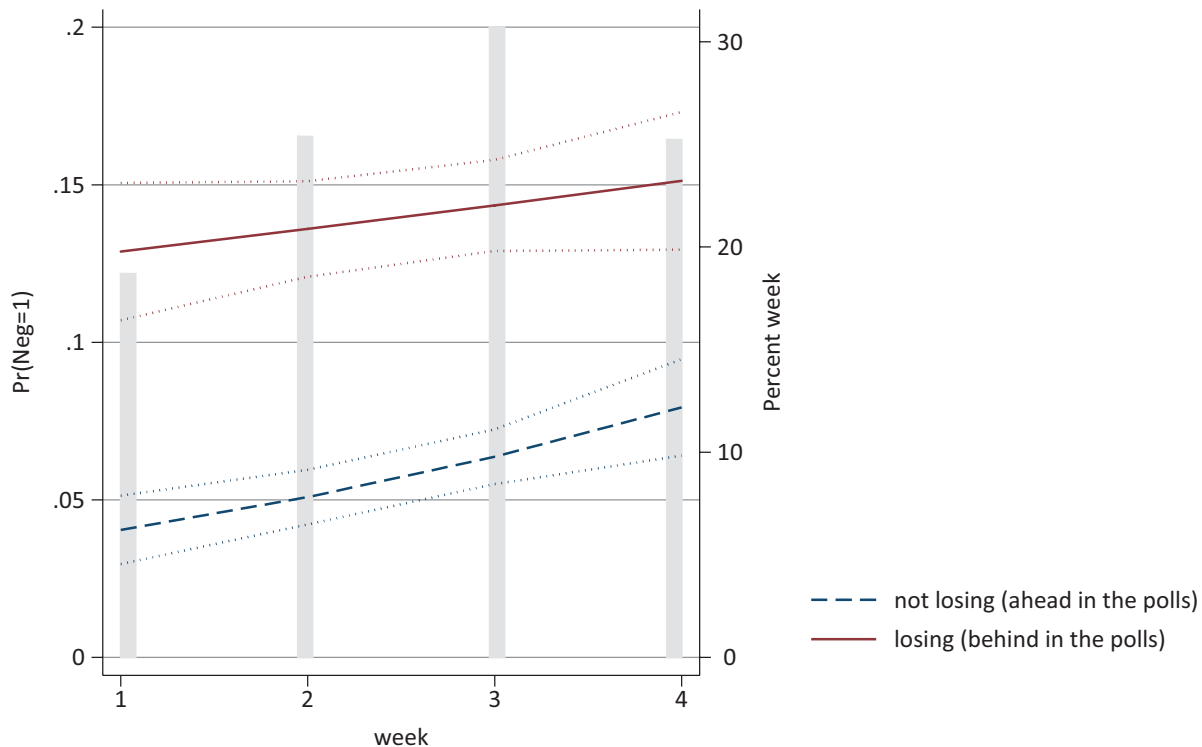
els have, comparatively, a smaller N. The two models provide evidence that suggests the presence of a joint effect between competitive standing and advertisement timing (H3). Even though in both cases the effect of losing in the polls is positive, this effect is stronger and statistically significant only in the last two weeks of the campaign (model M4). The magnitude of this effect, compared with the direct effect of losing in the polls, is substantiated in Figure 3.

Table 3 introduces a new set of analyses. The relevant variable measures how much support the camp has lost between the two SRG polls (total support lost); positive values signal a loss between polls (decreasing popular support), and thus a net degradation in competitive standings, whereas negative values signal a gain in popular support between polls.

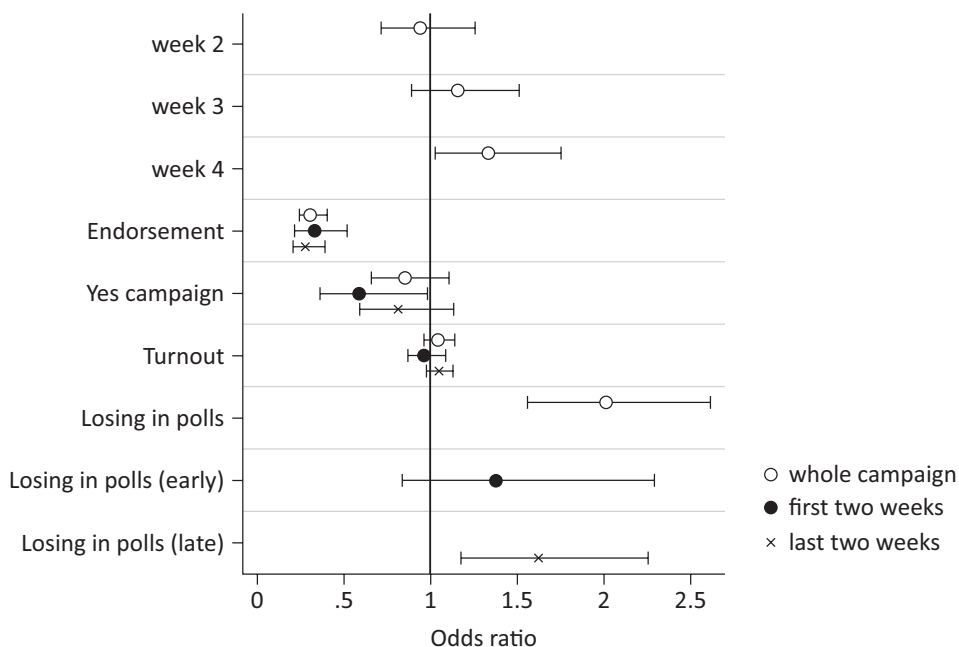
We expected degradation in competitive standings—that is, losing popular support over the duration of the campaign—to decrease the likelihood of negative advertising (H4). Our analyses provide preliminary support for this expectation. When the difference between support in poll 1 (six weeks before the vote) and poll 2 (two weeks before the vote) is positive—that is, when the actor

faces deteriorating polls—the probability of running ads with personal attacks decreases significantly. The effect, although positive and significant (as expected) is however not particularly strong, as substantiated in Figure 4 through marginal effects.

The final two models in Table 3 test for the same effect, but by differentiating between ads published by the winning camp (that is, the camp that is still winning in the polls even after results of the second survey are published; M6) and ads published by the losing camp (M7) during the last week of the campaign only (which explains the lower N overall in the models). The direction of the main results is as expected and are relatively substantial, as illustrated in Figure 5 via marginal effects. Ads published in the last week of the campaign by the winning camp (top panel) are not substantially more negative when the camp lost support between polls. On the other hand (bottom panel), the probability of running ads with personal attacks decreases quite substantially with increasing loss in poll support for the losing camp. This supports our expectation that deteriorating polls makes them more cautious and less likely to go negative on their opponents (H4).



**Figure 2.** Negative campaigning by losing in polls \* week, marginal effects. Notes: Marginal effects with 95% confidence intervals, based on coefficients in Model M2 (Table 2). The grey bars represent the distribution of the variable “week” (percentage histogram).

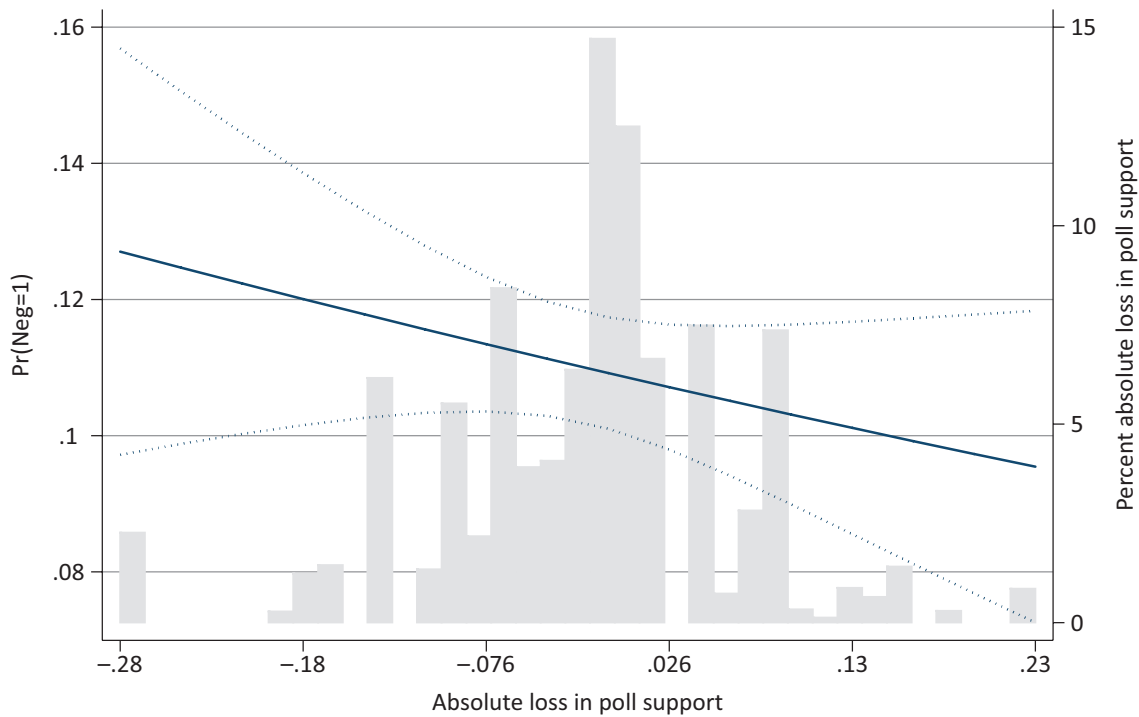


**Figure 3.** Standardized effects losing in the polls and advertisement timing. Notes: scores represent odds ratios for regression models predicting the presence of personal attacks in ads. Coefficients for the whole campaign are from model M1, coefficients for the first two weeks are from model M3, and coefficients for the last two weeks are from model M4 (Table 2). Coefficients for initiative and foreign policy not presented in the figure to simplify visualization, due to high confidence intervals.

**Table 3.** Use of personal attacks by evolution of competitive standing.

	All ads			Winning camp			Losing camp		
	M4 OR	(Se)	Sig	M5 OR	(Se)	Sig	M6 OR	(Se)	Sig
Intercept	0.04	(0.01)	***	0.00	(0.00)	***	1.64	(3.39)	
Total support lost <sup>a</sup>	0.12	(0.08)	**	0.87	(2.56)		0.01	(0.01)	†
Endorsement				0.18	(0.07)	***	0.73	(0.22)	
Ad supports YES vote				0.90	(0.54)		2.07	(1.48)	
Turnout				1.11	(0.05)	**	0.92	(0.04)	†
Popular initiative				0.57	(0.26)		1.84	(1.03)	
Foreign policy				0.84	(0.40)		10.06	(6.23)	***
Log Likelihood	-1796			-214			-266		
Rho	0.43	(0.07)		0.13	(0.08)		0.21	(0.12)	
N (ads)	5,744			796			661		
N (projects voted)	59			56			50		
N per group (min/avg/max)	3/97.4/328			1/14.2/54			1/13.2/73		

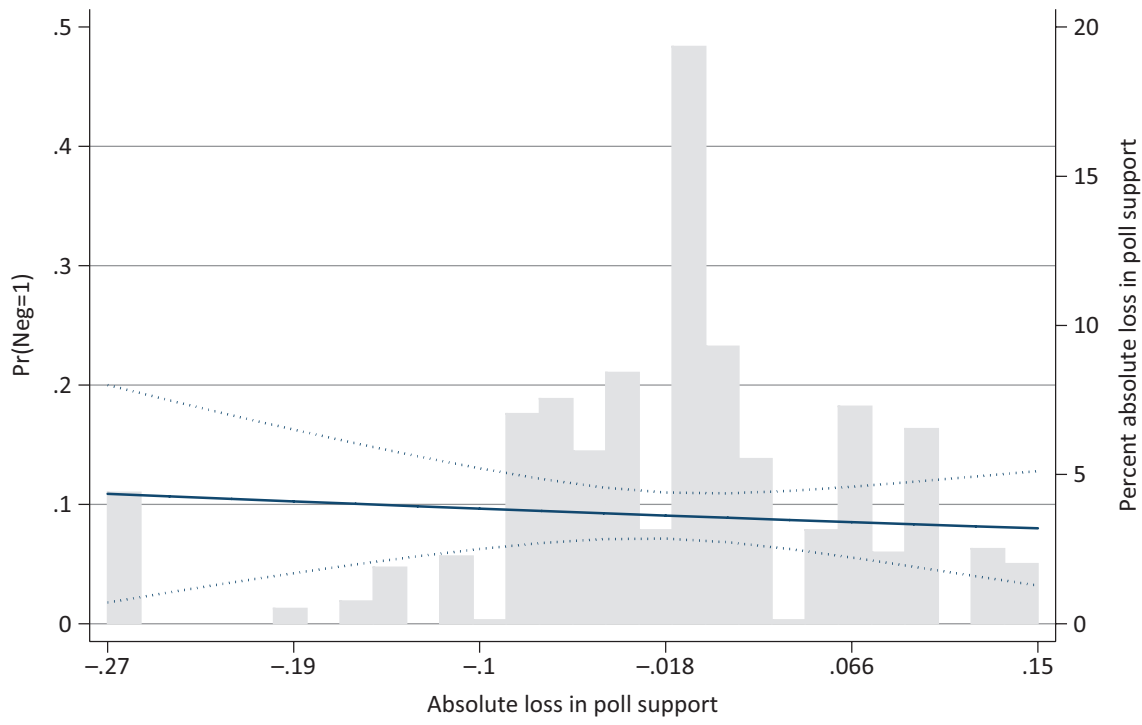
Notes: \*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1. <sup>a</sup> Total support lost measures the difference in support between Survey 1 (six weeks before the vote) and Survey 2 (two weeks before the vote). Thus, positive values mean that the camp *lost* support between Survey 1 and Survey 2, whereas negative values mean that the camp *gained* support between Survey 1 and Survey 2. Dependent variable is the presence of negativism in the ad (binary variable), random effects logistic regressions run with Stata 14.1. Coefficients are odds ratios, standard errors in parentheses. All models run only for ads published during the last week of the campaign (one week prior to voting day).



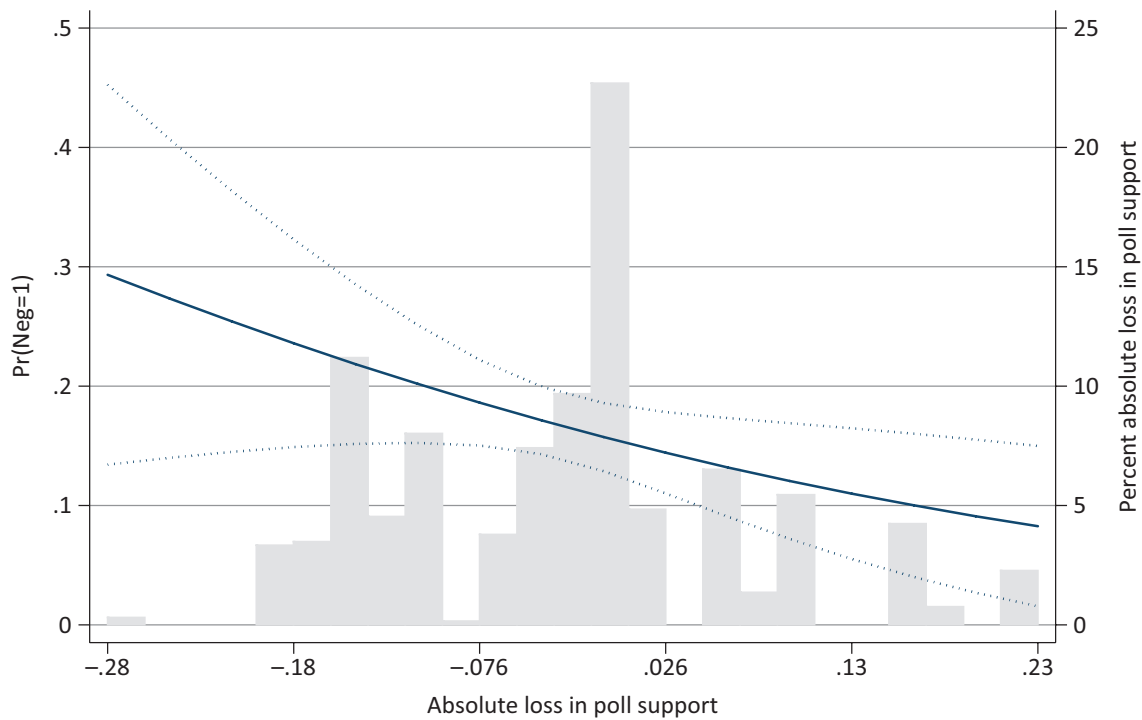
**Figure 4.** Negative campaigning by percentage of support lost between polls, marginal effects. Notes: Marginal effects with 95% confidence intervals, based on coefficients in model M5 (Table 3). The grey bars represent the distribution of the variable “absolute loss in poll support” (percentage histogram).

Our data does not, of course, allow us to test for the underlying emotional components of such effects. We do not have data that measure the emotional state of campaign managers, nor do we know how they actually reacted to the publication of poll results; we do not know if

seeing a drop in poll support makes them more attentive to potential risks associated with more aggressive communication strategies. We do not even know who makes the decision ultimately to go negative on the opponents. The realm of strategic decisions of campaign consultants



(a)



(b)

**Figure 5.** Negative campaigning by percentage of support lost between polls, marginal effects (winning vs. losing in polls). **(a)** Winning in polls during week 4. **(b)** Losing in polls during week 4. Notes: marginal effects with 95% confidence intervals, based on coefficients in model M6 (top panel) and M7 (bottom panel) of Table 3. All estimations computed for ads published within the last week of the campaign; top panel presents estimations for ads published by the camp winning in the polls (regardless of evolution of poll support), whereas bottom panel presents estimations for ads published by the camp losing in the polls (regardless of evolution of poll support).

and PR managers is, in our case, hidden inside the black box of campaign strategies. All in all, our results can be read as follows: Frontrunners do not go negative, especially not when they only have a little time left before the vote (why would they, after all? They are already ahead in the race and attack messages can be a risky business). Underdogs, on the other hand, are more likely to go negative, especially when they have nothing to lose (in which case they “pull the goalie”). This asymmetry between runners, that grows stronger as time to campaign runs out, holds in most situations *but one*: when underdogs see their position in the polls deteriorate drastically they would rather not use personal attacks.

## 6. Conclusion and Discussion

It seems today undeniable that *attack politics matter*. It is usually disliked by citizens, and might thus contribute to some of the systemic illnesses of Western electoral democracies, such as low turnout (Ansolabehere & Iyengar, 1995) and increased cynicism (Yoon et al., 2005). It might, on the other hand, increase citizens’ attention (Geer, 2006; Lau & Redlawsk, 2015). Perhaps more importantly, attacks have the potential of being electorally consequential as they might reduce positive feelings for the target (Banda & Windett, 2016; Nai & Seeberg, 2018; Pinkleton, 1997). Within this framework, it is thus not a surprise that most studies on the reasons to go negative have focussed on the strategic underpinnings of such decision, focussing on the trade-off between benefits (decreasing support and turnout for the opponent, discouraging undecided voters to turn out and vote for the opponents, and ultimately win the race) and costs (potential “backlash” effects coming from voters usually disliking negative messages). Two factors seem to stand out as particularly relevant: the competitive standing of actors and the advertisement timing. Existing literature rather strongly agrees that the prospect of electoral failure increases the use of negative advertising (e.g., Harrington & Hess, 1996; Skaperdas & Grofman, 1995) and that the frequency of negative messages seems to increase when voting day looms (e.g., Freedman & Goldstein, 2002; Ridout & Holland, 2010).

The existence of those dynamics was our starting point. In this article, we studied campaign dynamics on a particularly conservative case (Swiss referenda), but by focussing on a particular type of campaign messages that are more likely to backfire and lower evaluation of the sponsor: *personal attacks* (Budesheim et al., 1996). Our preliminary goal was to confirm, for this specific case as well, the known effects of competitive standing and advertisement timing. Our results show that, indeed, personal attacks are more likely when actors are lagging behind in the polls and when voting day is close.

Beyond replicating these effects, however, our goal was to advance our understanding about strategic dynamics by testing two new hypotheses, that we named the *frantic loser* and the *anxiety* hypotheses. We pro-

vided preliminary support for these hypotheses. Our analyses show that frontrunners go negative very rarely, especially when they only have a little time to recover from potential *faux pas*. On the other hand, underdogs are sensibly more likely to go negative, especially when they have nothing to lose and time to campaign runs out. Our analyses also showed, in support of our *anxiety* hypothesis, that when underdogs see their position in the polls deteriorate they are less likely to use personal attacks.

We postulated that this effect might exist due to the intervention of forces that go beyond (and beneath) pure rationality and strategic reasoning: emotional states, in this case anxiety experienced when facing drastic degradation of competitive standings. Due to the nature of our data, the intervening and moderating effect of emotions is only postulated here. Our analyses do, however, provide evidence that supports this rationale. All in all, our results suggest that a more encompassing approach is needed for the study of the drivers of negativity: first, by adding a dynamic component and acknowledging that campaigns are highly volatile and evolving social phenomena, and second by acknowledging that pure rational thought and economic strategies are necessarily affected by the underlying emotional states of those, humans after all, that face the decision whether or not to run negative ads. Correlational effects such as those described in this study should thus, as a next step, be tested through sociological studies of actors involved in strategic campaign decisions (e.g., Levenshush, 2010; Plasser, 2000).

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## Conflict of Interests

The authors declare no conflict of interests.

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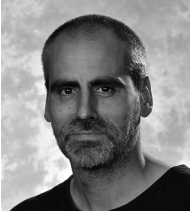
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**Appendix**
**Table A1.** List of referenda between 1999 and 2012 at the Swiss federal level.

Ref. ID	Referendum issue	Date voted	Type	Percentage of ads with attacks	SRG survey available?
661	Federal Council membership eligibility	07.02.1999	Compulsory referendum	0.00	No
662	House ownership for everyone	07.02.1999	Initiative	0.34	No
663	Spatial planning law amendment	07.02.1999	Optional referendum	0.00	No
664	Organ transplantation regulations	07.02.1999	Compulsory referendum	<i>No ads</i>	No
671	New Swiss constitution	18.04.1999	Compulsory referendum	0.10	No
681	Asylum law	13.06.1999	Optional referendum	0.05	No
682	Federal resolution on foreigners and asylum	13.06.1999	Optional referendum	0.05	No
683	Medical prescription of heroin	13.06.1999	Optional referendum	0.00	No
684	Federal law on disability insurance	13.06.1999	Optional referendum	0.00	No
685	Federal law on maternity insurance	13.06.1999	Optional referendum	0.32	Yes
691	Judicial reform	12.03.2000	Compulsory referendum	0.00	No
692	Speeding up direct democracy	12.03.2000	Initiative	0.22	No
693	Women in federal authorities	12.03.2000	Initiative	0.00	No
694	Procreation technology	12.03.2000	Initiative	0.00	No
695	Halving motorised road traffic	12.03.2000	Initiative	0.12	No
701	Sectoral agreements with the EU	21.05.2000	Optional referendum	0.12	No
711	Promoting solar energy	24.09.2000	Initiative	0.00	Wave 1 only
712	Counter-proposal on solar energy	24.09.2000	Counter-proposal	0.00	Wave 1 only
713	Tax contribution for energy efficiency	24.09.2000	Compulsory referendum	0.00	Wave 1 only
714	Regulating immigration	24.09.2000	Initiative	0.27	Yes
715	Referendums with counter-proposals	24.09.2000	Initiative	0.00	No
721	Retirement age for women	26.11.2000	Initiative	0.13	No
722	Flexible retirement age	26.11.2000	Initiative	0.16	No
723	Economising on military and defence	26.11.2000	Initiative	0.02	No
724	Lower hospital expenses	26.11.2000	Initiative	0.20	No
725	Law on federal employees	26.11.2000	Optional referendum	0.00	No
731	European Union membership	04.03.2001	Initiative	0.07	Yes
732	Lower medicine prices	04.03.2001	Initiative	0.11	No
731	European Union membership	04.03.2001	Initiative	0.07	Yes
732	Lower medicine prices	04.03.2001	Initiative	0.11	No
733	Urban speed limit of 30 km/h	04.03.2001	Initiative	0.03	No
741	Federal law on the military amendment (1)	10.06.2001	Optional referendum	0.26	Yes
742	Federal law on the military amendment (2)	10.06.2001	Optional referendum	0.26	Yes
743	Abolishing permits for creating diocese	10.06.2001	Compulsory referendum	0.00	No
751	Federal resolution on expenditure	02.12.2001	Compulsory referendum	0.00	No
752	For an assured Aged and Bereaved insurance	02.12.2001	Initiative	0.05	No

**Table A1.** (Cont.) List of referenda between 1999 and 2012 at the Swiss federal level.

Ref. ID	Referendum issue	Date voted	Type	Percentage of ads with attacks	SRG survey available?
753	For an authentic security policy	02.12.2001	Initiative	0.16	No
754	Solidarity creates security	02.12.2001	Initiative	0.15	No
755	For a capital gains tax	02.12.2001	Initiative	0.08	No
761	United Nations membership	03.03.2002	Initiative	0.17	Yes
762	Reducing working hours	03.03.2002	Initiative	0.06	No
771	Amendment on abortion	02.06.2002	Optional referendum	0.00	Yes
772	Restricting abortion	02.06.2002	Initiative	0.17	Yes
781	Surplus gold reserves into pension fund	22.09.2002	Initiative	0.02	Yes
782	Counter-proposal on gold reserves	22.09.2002	Counter-proposal	0.00	Yes
783	Electricity market law	22.09.2002	Optional referendum	0.02	No
791	Restricting asylum policies	24.11.2002	Initiative	0.26	Yes
792	Federal law on unemployment insurance	24.11.2002	Optional referendum	0.05	No
801	Referendum process	09.02.2003	Compulsory referendum	0.00	No
802	Cantonal contribution to hospital medicine	09.02.2003	Optional referendum	0.00	No
811	Federal law on the army	18.05.2003	Optional referendum	0.06	No
812	Federal law on civil defence	18.05.2003	Optional referendum	0.08	No
813	Motor vehicle-free Sundays	18.05.2003	Initiative	0.03	No
814	Affordable healthcare	18.05.2003	Initiative	0.05	Yes
815	Equal rights for the disabled	18.05.2003	Initiative	0.00	No
816	Fair rents	18.05.2003	Initiative	0.07	No
817	Electricity without nuclear power	18.05.2003	Initiative	0.20	No
818	Ban on new nuclear power plants	18.05.2003	Initiative	0.20	No
819	Provision of vocational education	18.05.2003	Initiative	0.00	No
821	Counter-proposals to motorway initiative	08.02.2004	Counter-proposal	0.13	Yes
822	Amendment to the Obligations (tenancy) law	08.02.2004	Optional referendum	0.06	No
823	Life sentences for dangerous criminals	08.02.2004	Initiative	0.00	No
831	Amending the Aged and Bereaved insurance law	16.05.2004	Optional referendum	0.03	No
832	Financing of Aged and Bereaved insurance	16.05.2004	Compulsory referendum	0.00	No
833	Federal law on taxation	16.05.2004	Optional referendum	0.07	No
841	Federal resolution on naturalisation	26.09.2004	Compulsory referendum	0.03	Yes
842	Citizenship rights of third-generation immigrants	26.09.2004	Compulsory referendum	0.02	Yes
843	Compensation for members of the armed forces	26.09.2004	Optional referendum	0.00	Yes
844	Postal services for all	26.09.2004	Initiative	0.00	No
851	Federal and cantonal financial duties	28.11.2004	Compulsory referendum	0.00	Yes
852	Constitutional reordering of the federal budget	28.11.2004	Compulsory referendum	<i>No ads</i>	No

**Table A1.** (Cont.) List of referenda between 1999 and 2012 at the Swiss federal level.

Ref. ID	Referendum issue	Date voted	Type	Percentage of ads with attacks	SRG survey available?
853	Stem cell research law	28.11.2004	Optional referendum	0.00	Yes
871	Schengen/Dublin Agreement	05.06.2005	Optional referendum	0.13	Yes
872	Registered partnerships	05.06.2005	Optional referendum	0.00	Wave 1 only
881	Agreement on free movement of persons	25.09.2005	Optional referendum	0.16	Yes
891	Genetically modified food	27.11.2005	Compulsory referendum	0.00	Yes
892	Labour law	27.11.2005	Optional referendum	0.00	Yes
901	Constitutional amendment on education	21.05.2006	Compulsory referendum	<i>No ads</i>	No
911	Swiss National Bank profits	24.09.2006	Initiative	0.06	Yes
912	Amendment to the foreigners law	24.09.2006	Optional referendum	0.09	Yes
913	Amendment to the asylum law	24.09.2006	Optional referendum	0.08	Yes
921	Law on assistance for eastern Europe	26.11.2006	Optional referendum	0.10	Yes
922	Amendment to the family allowances law	26.11.2006	Optional referendum	0.04	Yes
931	For a Social Unified Health Insurance	11.03.2007	Initiative	0.07	Yes
941	Disability law amendment	17.06.2007	Optional referendum	0.01	Yes
951	Against fighter aircraft noise in tourism areas	24.02.2008	Initiative	0.00	Wave 1 only
952	Business tax reform	24.02.2008	Optional referendum	0.04	Wave 1 only
961	For democratic naturalisation	01.06.2008	Initiative	0.44	Yes
962	Against government run information campaigns	01.06.2008	Initiative	0.88	Yes
963	Counter-proposal on health insurance	01.06.2008	Counter-proposal	0.10	Yes
971	Pornographic crimes against children	30.11.2008	Initiative	0.00	No
972	Flexible state pension age	30.11.2008	Initiative	0.09	Yes
973	Restriction of the right of associations to appeal against building projects	30.11.2008	Initiative	0.04	Yes
974	Legalisation of the personal consumption and production of cannabis	30.11.2008	Initiative	0.03	Yes
975	Revision of the federal statute on narcotics	30.11.2008	Optional referendum	0.05	Yes
981	Extending freedom of movement for workers in EU to Bulgaria and Romania	08.02.2009	Optional referendum	0.08	Yes
991	Future with complementary medicine	17.05.2009	Counter-proposal	0.00	Yes
992	Introduction of biometric passports	17.05.2009	Optional referendum	0.00	Yes
1001	Limited increase of VAT to continue financing the Disability Insurance	27.09.2009	Compulsory referendum	0.02	Yes
1002	Decision not to introduce public initiatives	27.09.2009	Compulsory referendum	<i>No ads</i>	Yes
1011	Aviation fuel taxation	29.11.2009	Compulsory referendum	0.00	Yes
1012	Ban on exporting war supplies	29.11.2009	Initiative	0.00	Yes
1013	Ban on the construction of new minarets	29.11.2009	Initiative	0.20	Yes
1021	Amendment to the constitution on research on humans	07.03.2010	Compulsory referendum	<i>No ads</i>	Wave 1 only

**Table A1.** (Cont.) List of referenda between 1999 and 2012 at the Swiss federal level.

Ref. ID	Referendum issue	Date voted	Type	Percentage of ads with attacks	SRG survey available?
1022	Providing enhanced legal protection for animals	07.03.2010	Initiative	0.06	Wave 1 only
1023	Change in minimum conversion rate for occupational/disability pension plans	07.03.2010	Optional referendum	0.15	Wave 1 only
1031	Revision of unemployment benefits	26.09.2010	Optional referendum	0.09	Yes
1041	For the deportation of criminal foreigners	28.11.2010	Initiative	0.00	Yes
1042	Counter-proposal to the initiative for the deportation of criminal foreigners	28.11.2010	Counter-proposal	0.15	Yes
1043	Taxation justice initiative	28.11.2010	Initiative	0.20	Yes
1051	For the protection against gun violence	13.02.2011	Initiative	0.15	Yes
1061	For an end to the limitless construction of second homes	11.03.2012	Initiative	0.04	Yes
1062	For tax-supported building society savings to buy living space for self-use	11.03.2012	Initiative	0.00	Yes
1063	Six weeks of vacation for everyone	11.03.2012	Initiative	0.00	Yes
1064	State earnings from gambling to be used for the public interest	11.03.2012	Compulsory referendum	0.00	Yes
1065	Re-introduction of the Fixed Book Price Agreement	11.03.2012	Optional referendum	0.00	Yes
1071	For assistance with savings for home buyers	17.06.2012	Initiative	0.01	Yes
1072	For strengthening popular rights on foreign policy	17.06.2012	Initiative	0.00	Yes
1073	Reform of healthcare legislation	17.06.2012	Optional referendum	0.00	Yes
1081	Counter-project to initiative “youth and music”	23.09.2012	Counter-proposal	0.00	Yes
1082	Secure housing in old age	23.09.2012	Initiative	0.03	Yes
1083	Smoking ban referendum	23.09.2012	Initiative	0.06	Yes
1091	Swiss Animal Diseases Act	25.11.2012	Optional referendum	0.00	No

Notes: Referenda excluded from all analyses if SRG survey data missing, and from some analyses if only wave 1 is available. Source: authors' own data (share of negative ads) and Gfs.bern data (pre-election polls).