The subtle influence of information on voting behaviour

Referendums and political elections in Italy and the UK

Davide Morisi

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of Political and Social Sciences
of the European University Institute

Florence, 04 November 2016

European University Institute
Department of Political and Social Sciences

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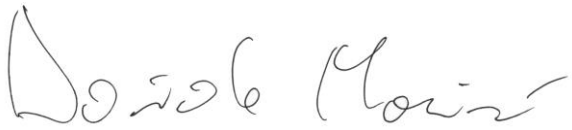

Florence, 18 September 2016

Abstract

This dissertation explores the effects of information on voting behaviour and political attitudes in three case studies, with a combination of original empirical data and secondary survey data. In Chapter 2 and Chapter 3, I explored how issue-based arguments influenced attitudes and voting behaviour in the campaign for the 2014 Scottish independence referendum. Data from a laboratory experiment, two follow-up surveys and additional survey data reveal that information led to different patterns of attitude polarization and depolarization, depending on the moderating elements of attitude relevance and decision about how to vote. With regard to voting intentions, campaign arguments increased the support for Scottish independence mainly through reducing the uncertainties related to this referendum option.

In Chapter 4, the analysis of an online experiment, in combination with a representative panel survey, aims to identify how negative messages by party leaders affected support for parties in the 2015 British general election. Findings show that negative campaigning polarised the electorate along national identity lines: among British voters, negativity increased support for some of the parties sponsoring the attacks, while among Scottish voters it actually increased support for the target of the attacks.

Lastly, in Chapter 5, I examine how the recent introduction of digital television affected turnout and voting behaviour in a series of referendum and election consultations that took place between 2010 and 2013 in Italy. The method applied is a regression discontinuity design that exploits the heterogeneous diffusion of digital television in a quasi-experimental setting. The analysis of two extensive datasets with voting and socio-demographic data at the municipality level that I personally collected confirms that increasing the availability of entertainment channels reduced electoral participation in different referendum and electoral consultations.

The studies presented in this thesis indicate that the effects of information on political behaviour might be subtler than early research generally conceived, due to the crucial role of different moderating variables at the individual level. Nevertheless, in a complex political world, subtle effects can still contribute to winning elections. From a normative perspective, identifying how citizens make political decisions in response to information acquires substantial relevance not only for academic research, but also for improving democratic decisions. Without knowing the mechanisms of information processing and the consequences of these mechanisms on opinion formation, the idea that an informed society is a better society remains a vague ideal.

Acknowledgments

When I embarked into this academic journey, I could not imagine that four years of PhD research would have changed my life so drastically. A few weeks after starting the PhD programme, I remember talking to my supervisor, Professor Diego Gambetta, at a dinner at Johanna Gereke and Nan Zhang's place. What struck me the most was Diego's capacity to see unexpected links and hidden mechanisms under the surface of several aspects of everyday life that to me had no connections with academic research. Was I doomed to follow a slippery slope towards losing a naïve, but extremely comfortable approach to most of our social environment? After four years of research, I believe the answer is "yes", and – for good or bad – I am deeply indebted to Diego for leading me along this fascinating path. My greatest thanks, therefore, go to him for believing in my potential as a researcher, and for all the support and the enthusiasm that he put in this project. Diego has been an impressive supervisor, a thought-provoking discussant, and an intellectual mentor who has provided me with a continuous source of research inspiration.

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Next, I would like to thank the external members of the Examining Board, Professor John Jost and Professor Rune Slothuus for providing me with extremely helpful comments on the work included in this thesis. The research presented here has benefited also from the help of other colleagues. For my study on the Scottish independence referendum I am indebted to the help and support of Céline Colombo. With Céline, we shared the pleasure and pain of conducting all the phases of the experiment – from drafting the design, to scraping together the necessary funding, until actually carrying out the experiment in Edinburgh. The present study would not have been possible without her tireless dedication and scrupulous attention. I would like to express a special thanks also to Professor Simon Clark, Professor Michele Belot and Ivan Salter from the School of Economics at University of Edinburgh for all the support they gave us during the experiment, and for allowing me to spend an exciting month as a visiting researcher in Edinburgh in the final phase of the Scottish referendum campaign.

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1.

Introduction

> "Ladies and gentlemen, we interrupt our program of dance music to bring you a special bulletin from the Intercontinental Radio News. … Incredible as it may seem, both the observations of science and the evidence of our eyes lead to the inescapable assumption that those strange beings who landed in the Jersey farmlands tonight are the vanguard of an invading army from the planet Mars."
>
> Welles, H.G. (1938). *The War of the Worlds*, Columbia Broadcasting System

On the evening of 30 October 1938, a radio programme in the United States reported a shocking announcement about a mysterious meteorite landing in the New Jersey countryside. In a climate of increasing tension, alarmed reporters from the field described an invading force of Martian creatures moving towards New York City. The startling news – an adaptation of Orson Welles' *The War of the Worlds* – sparked panic in the audience, with thousands of radio listeners flooding newspaper offices and police stations with calls. According to popular myth and newspapers headlines, a fictitious news announcement led to a "wave of mass hysteria", as the New York Times reported on the following day. Yet, according to recent investigations (Schwartz, 2015; Pooley and Socolow, 2015), the massive reaction to the bogus story was apparently also a fake. "The supposed panic was so tiny as to be practically immeasurable on the

night of the broadcast", Pooley and Socolow write (2015). In a battle to snatch advertising revenues from the increasingly popular radio, the traditional newspapers "seized the opportunity presented by Welles' program to discredit radio as a source of news" (ibid.), and wildly inflated the consequences of the bogus news programme. The hoax of a Martian invasion triggered another hoax – that of citizens being massively manipulated by the powerful mass media.

The anecdote of *The War of the Worlds* radio programme exemplifies two opposing views that have long shaped the debate in social science on how media affect citizens' opinions and behaviour. On the one hand, early transmission models (McQuail, 2000: 52-53) conceived media as powerful tools that conveyed information from an active source to a passive receiver. Inspired by Lasswell's early studies on propaganda (1927), media messages were portrayed as a 'magic bullet' or a 'hypodermic needle' (DeFleur and Ball-Rokeach, 1989) that small, influential elites could use to persuade a receptive mass audience. On the other hand, the subsequent discovery that deeply rooted elements – such as socio-economic characteristics (Lazarsfeld et al., 1944), interpersonal relations (Katz and Lazarsfeld, 1955), and party identification (Campbell et al., 1960) – actually represented the major determinants of voting decisions led to the opposite idea that media's role in shaping public opinion was marginal (Klapper, 1960; McGuire, 1986). A few decades afterwards, however, the 'minimal effect' paradigm came into question, as new studies provided substantial evidence in favour of a broad range of media and campaign effects (for a review, see section 3.2).

Although the research field has now moved beyond the Manichean view of powerful versus minimal effects, the debate on how media messages affect citizens' opinions and behaviour is far from exhausted. The radical changes that the process of digitisation of information and the advent of the internet have brought to the information environment over the last two decades (for a review, see section 5.1) have sparked a new wave of studies. In particular, scholarly

research has attempted to understand the consequences for public opinion and political behaviour of having increased access to information. In the current media environment, for example, it would not have taken long to unveil the truth behind a fake story like Orson Welles', thanks to the possibility of instantly checking multiple news sources. However, the same possibilities offered by the internet to access and share an increased amount of content can also lead to side effects, such as the proliferation of bogus stories that circulate on social media. In the online world, hoaxes live shorter, but also breed faster.

The spread of false news in the current media environment is only one example of the puzzle that initially triggered this thesis. Can increased access to information have not only positive, but also *negative* consequences? In an environment in which the possibilities to acquire a broader range of content at a lower cost have significantly increased, what are the effects of information? Extensive research on deliberation (see for example Gambetta, 1998) has often underlined the positive implications of increased availability of media options, arguing for example that the internet can contribute to mobilising citizens and enforcing public deliberation (for a review, see Loveland and Popescu, 2011; Delli Carpini et al., 2004). Yet, besides these positive benefits, another strand of research has underlined that a fragmented media environment can lead also to undesirable side effects, such as group polarisation (Sunstein, 2008), cyberapartheid (Putnam, 2000: 175), extreme political opinions (Stroud, 2011: 8-10), or segregated interactions (Mutz, 2006b: 145-146).

Inspired by these theoretical and empirical challenges, in this thesis my aim is to contribute to existing scholarship on the effects of information in the political realm. Two questions have prompted the research that follows in the next chapters. The first concerns the process of decision-making: how do citizens react to information when they make political decisions, such as voting for a candidate, a political party, or a particular issue presented in a referendum? The second question represents the other side of the coin: what are the effects of information on

political behaviour and public opinion? In the following chapters, with the term 'information' I will refer in particular to three elements: 1) issue-based arguments (i.e. arguments supporting the pros and cons of a referendum proposal in relation to different issues); 2) politicians' campaign statements, and; 3) the availability of media content (including both news and entertainment content).

As the analysis shows, the effects of information on political behaviour might be subtler than early research generally conceived, due to the crucial role of different moderating variables at the individual level. Nevertheless, in a complex political world, subtle effects can still contribute to winning elections. From a normative perspective, identifying how citizens make political decisions in response to information acquires substantial relevance not only for academic research, but also for improving democratic decisions. Without knowing the mechanisms of information processing and the consequences of these mechanisms on opinion formation, the idea that an informed society is a better society remains a vague ideal.

In the following chapters, I investigate the general research questions presented above in relation to three case studies. The first study concerns the campaign for the 2014 Scottish independence referendum. In Chapter 2, this particularly heated referendum campaign provides the background against which recent theories of information processing from political psychology will be tested. Drawing on data from an original lab-experiment, a follow-up survey, and a nationally representative panel, the study in this chapter explores whether in a context of issue-voting and in the absence of explicit party cues citizens still display a set of biases in the evaluation and selection of information that research on motivated reasoning as recently identified in other contexts (see section 2.2). In addition, the study explores how issue-based arguments affect participants' attitudes on Scottish independence. The puzzling question, in this case, concerns whether after being exposed to arguments from both sides of the campaign,

voters polarise in their attitudes instead of becoming more moderate. Data from a follow-up survey and a nationally-representative panel allow the exploration of whether or not polarisation trends eventually last over time as the campaign approaches the referendum day.

The analysis in Chapter 3 extends the analysis of the Scottish case by exploring the impact of the arguments in favour and against Scottish independence on voting behaviour. The key question, in this case, concerns the possibility for campaign arguments to influence the outcome of the referendum, by convincing a share of the electorate to vote Yes or No to independence. At the theoretical level, the analysis draws on theories of media and campaign effects, in addition to theories of decision-making such as prospect theory, and recent studies on information processing in referendum campaigns (see section 3.2). The analysis in this chapter draws on the same experimental data used in Chapter 2, in addition to a follow-up survey that was conducted immediately after the referendum, and external sources of data that aim to provide further external validity to the findings.

Chapter 4 analyses the second case study of the thesis, namely the 2015 general elections in the UK. This chapter focuses on a particular strategy of negative campaigning that the main Westminster parties adopted in Scotland in order to prevent the predicted landslide victory of the Scottish National Party. Drawing on extended research on negative campaigning in the U.S. and recent analysis of the impact of this campaign strategy in Europe, I investigate how politicians' attack statements affected support for parties and voting behaviour. Did voters reward the parties sponsoring attack messages or did they instead reduce their support for these parties? This question is explored by combining data from an original online experiment that I conducted during the last two weeks of the campaign, with data from a nationally-representative panel survey conducted by the British Election Study.

The final case of the thesis concerns a series of referendum and election consultations that took place between 2010 and 2013 in Italy. Drawing on Barone and colleagues' (2015) recent

investigation in the region of Piedmont, in Chapter 5 I explore whether the recent introduction of digital television – a transmission technology that increases the number of available TV channels – affected turnout and voting behaviour in three cases: 1) the 2010 regional elections in Lazio; 2) a wave of national referendums in 2011, and; 3) the 2013 general elections. The fact that Italian provinces switched to new digital channels at different points in time provides the opportunity to identify the effects of television on voting behaviour in a quasi-experimental setting. The method adopted is a regression discontinuity design, which I applied after collecting two extensive datasets with voting and socio-demographic data at the municipality level in the centre-south of Italy. The main question of this study concerns whether expanding entertainment media options in an environment with slanted news affects both turnout and vote choice. As recent findings in the literature suggest the existence of contrasting long-term and short-term effects of TV exposure on voting, in this chapter I explore in particular whether prolonged exposure to entertainment channels lead to demobilising effects that last over time.

2.

Polarising or depolarising voters?

Information processing and attitude formation in the Scottish referendum campaign[1]

2.1. Introduction

Information is an essential component of political campaigns. By employing persuasive messages, candidates aim to convince voters and secure their support. However, as all those who have thrown themselves into a campaign have probably experienced, changing the electorate's mind with the simple "force of the best argument" (Habermas 1984, 100) often proves simply impossible. As seminal studies have highlighted, not only voters tend to select information that reinforces their predispositions (Lazarsfeld, Berelson, and Gaudet 1968), but attitudes are also generally stable (Converse 1962) and resistant to change (Petty and Cacioppo 1981). More recently, research on motivated reasoning (e.g. Leeper and Slothuus 2014; Lodge and Taber 2000, 2013; Petersen et al. 2013; Redlawsk 2006) has shown that individuals display different biases in the processing of political information, with the result that exposure to challenging

[1] A shorter version of this chapter is currently under review in a peer-reviewed journal.

evidence can lead to reinforcement of pre-existing attitudes (Taber and Lodge 2006). The documentation of these biases has strengthened long-standing concerns about individuals' ability to evaluate political evidence impartially (Druckman 2014; Lavine, Johnston, and Steenbergen 2012).

However, despite this growing amount of research, little is known about how voters react to information in real electoral contexts and, in particular, in contexts of issue-voting, such as referendum campaigns. Do citizens display the same biases when they need to make voting decisions about issues instead of parties or candidates? Does provision of information lead to polarisation of attitudes even in the absence of explicit party cues? It has been argued that campaign arguments crucially influence voters' preferences in referendum campaigns (De Vreese 2007; Hobolt 2009; Kriesi 2005), partially because political parties play a weaker role in these campaigns compared to general elections (De Vreese and Boomgarden 2007). Yet, the extent to which such arguments can actually affect voters' attitudes in direct democratic contexts has been rarely tested. In addition, research findings about the polarising effect of information are mixed. While studies have demonstrated that exposure to a mixed set of arguments can lead to attitude polarisation (Taber and Lodge 2006; Taber, Cann, and Kucsova 2009), recent investigations have revealed that polarisation might occur only under certain conditions – depending for example on individuals' strength of priors (Leeper 2014) and a context of polarised parties (Druckman, Peterson and Slothuus 2013) – or it might not occur at all (Guess and Coppock 2015).

This chapter addresses these gaps in the literature by analysing the effects of issue-based arguments on attitude formation in a so-far unexplored context of direct democracy, namely the campaign for the Scottish independence referendum, which was held on September 18, 2014. The choice of this specific consultation draws on three contextual factors that arguably make information an essential element for opinion formation: an extremely salient issue, a

substantially polarised electorate, and, at the same time, a relevant share of undecided voters, as indicated by all the main opinion polls throughout the campaign[2]. The result of the referendum – with 55.3 percent of "no" to independence and a massive turnout of 84.6 percent of the electorate – provided a post hoc confirmation of how salient and polarising the issue of independence was for Scotland.

The analysis draws on data from an original laboratory experiment, a follow-up survey and a nationally representative panel. In the experiment, the participants in the treatment groups read a mixed set of arguments under two conditions. In the first condition (selection), they could select and read eight texts from a larger pool of sixteen arguments in favour and against Scottish independence. In the second condition (balanced information), they simply read four pro and four con arguments presented in random order. After reading the arguments, the participants in both groups responded to an attitude battery about Scottish independence. Those assigned to the control group also selected and read a mixed set of arguments, but they did so only *after* replying to the same attitude battery. This particular design allows to identify two elements: a) the influence of prior attitudes on information processing, by analysing how the participants in the control group evaluated and selected the arguments; and b) the effect of information on the aggregate distribution of attitudes, by comparing pre-reading attitudes in the control group with post-reading attitudes in the treatment groups.

Four months after the experiment, the same participants took part in a follow-up survey in which they reported their attitudes again. This survey aimed to test whether the patterns of attitude formation identified in the experimental setting lasted also 'outside the lab', after a

[2] According to different opinion polls conducted in the four months preceding this study (January-April 2014), the share of undecided voters ranged from a minimum of 11 to a maximum of 30 percent of the electorate.

period of intense referendum campaign. Additional analysis of two waves of the British Election Study panel that were conducted approximately in the same period provides further external validity, by showing how attitudes changed within a nationally representative sample of voters.

The combination of experimental and survey data contributes to shedding light on a) how voters process information in a referendum campaign, b) how issue-based arguments influence voters' attitudes, and c) how attitudes develop over time during a campaign. Following the idea that "motivated reasoning does not mean biased reasoning" (Leeper and Slothuus 2014, 138), in the final section it is argued that the findings can be explained also in terms of rational behaviour, and that common normative assumptions of belief updating should be relaxed when their consequences for voting are taken into consideration.

2.2. Theoretical framework and hypotheses

Drawing on Kunda's (1990) early framework, a growing number of studies has applied the theory of motivated reasoning to interpret how individuals evaluate information in political contexts. As summarised by Leeper and Slothuus (2014, 136), the premise of motivated reasoning is that "all reasoning is motivated in the sense that when individuals attend to and process information, they are driven by specific motives or goals". Two goals in particular – accuracy and directional goals (Kunda 1990; see also Nir 2011, 506) – play a fundamental role, with directional goals being crucial in contexts of political decision-making. Driven mostly by the desire to defend prior beliefs – e.g. support for a given candidate or a political party – voters tend to display three types of biases when presented with political arguments. The first of these is an attitude congruence bias, whereby evidence consistent with prior beliefs is given greater weight (Taber and Lodge 2006; Taber, Cann, and Kucsova 2009). The second is a confirmation bias, whereby information that supports prior beliefs is actively sought (Fischer et al. 2005;

Nickerson 1998; Taber and Lodge 2006). Finally, voters may display a disconfirmation bias, whereby more time is spent counter-arguing and dismissing arguments inconsistent with prior beliefs (Edwards and Smith 1996; Redlawsk 2002, 2006; Rudolph 2006; Taber, Cann, and Kucsova 2009). Drawing on this evidence, we can assume that these mechanisms of motivated reasoning should apply also in the context of issue voting. Although these mechanisms might not necessarily correspond to a bias, as argued in the discussion part, for consistency with the literature (see Taber and Lodge 2006, 757), three assumptions can be posited:

HYPOTHESIS 1A: voters will give evidence consistent with prior attitudes greater weight than inconsistent evidence (an attitude congruence bias);

HYPOTHESIS 1B: when selection is possible, voters will seek more evidence consistent with prior attitudes than inconsistent evidence (a confirmation bias);

HYPOTHESIS 1C: voters will spend more time evaluating evidence inconsistent with prior attitudes in order to dismiss it (a disconfirmation bias).

As a consequence of these premises, after reading a mixed set of arguments, individuals should reinforce instead of moderate prior attitudes. Thus, with regard to the specific design of this study, it can be assumed that exposure to information should lead to an aggregate effect of attitude polarisation, as a result of voters developing stronger attitudes on both sides of the referendum campaign.

HYPOTHESIS 2: provision of a mixed set of arguments will lead to attitude polarisation – i.e. the distribution of attitudes in the treatment groups will be more polarised than the distribution of attitudes in the control group.

In a real information environment – and especially in the current high-choice media environment (Prior 2007) – individuals have ample possibilities to *choose* the information they

consume. As scholars have often argued (for a review, see Mutz and Young 2011), these increased choice possibilities might lead to selective exposure to information, meaning that individuals select evidence with the aim of reinforcing pre-existing opinions, instead of benefiting from a broad range of viewpoints. Although early research on selective exposure yielded mixed results (for a review see Cotton 1985; Sears and Freedman 1967; Stroud 2008), there is now evidence that this mechanism occurs especially in relation to political topics (Iyengar and Hahn 2009; Knobloch-Westerwick 2012; Mutz and Martin 2001; Stroud 2011, 15-33).

That said, both recent studies on disconfirmation bias and also early research on biased assimilation of information (Lord, Ross, and Lepper 1979; Miller et al. 1993; Munro and Ditto 1997) have documented that individuals tend to reject counter-attitudinal messages even when selection of evidence is not possible. These findings suggest that, as long as individuals have access to arguments from both sides of a campaign, they should polarise *regardless* of the possibility to select the information material, since they will both attribute more weight to confirmatory evidence and discount counter-attitudinal evidence. This assumption finds indirect support in a recent experiment by Leeper (2014), in which evaluation of information rather than search for information triggers individuals' attitude change. With regard to the design of this study, therefore, we can hypothesise that participants' attitudes should polarise in both treatment conditions (selection vs. balanced information).

HYPOTHESIS 2A: the distribution of attitudes in *both* treatment groups will be more polarised than the distribution of attitudes in the control group.

At the individual level, previous studies have indicated that several moderators can affect evaluation of information, such as political sophistication (Kriesi 2005; Zaller 1992), ideology (Rogowski and Sutherland 2016), anxiety (Groenendyk 2016), and partisanship (Bolsen,

Druckman, and Cook 2014; Mullinix 2016; Slothuus and de Vreese 2010). In particular, evidence shows that the strength of prior attitudes plays a crucial role in information processing, since individuals with strong priors are more likely to discount counter-attitudinal messages and polarise (Lodge and Taber 2005; Taber and Lodge 2006; Leeper 2014) than those with weak priors.

In the context of political decision-making, it can be argued that the level of decision about how to vote should also moderate the reception of information. In particular, we can expect voters to react differently to pro and con messages in a referendum campaign, depending on whether they have already chosen to vote "yes" or "no", or whether they are still willing to change their mind. This decision-level moderator has not been explored in the literature so far, due to the fact that most experimental studies have not been conducted during a real campaign. However, despite this lack of evidence, it seems reasonable to expect that those with strong priors and those who have already decided how to vote will react similarly to new evidence, since in the short term it is arguably costlier to revise a decision than to discount challenging evidence. Thus, we can also expect 'decided' voters to react defensively to counter-attitudinal messages and polarise in response to a mixed set of arguments.

HYPOTHESIS 3: provision of a mixed set of arguments will lead to attitude polarisation especially among those with strong prior attitudes and those who have already decided how to vote.

Lastly, we can assume that polarisation will increase over the course of the campaign. Although only a few experimental studies have investigated polarisation processes over time (Druckman, Fein, and Leeper 2012; Leeper 2014), we can hypothesise that in a referendum context, attitudes will polarise as the campaign approaches voting day as a result of voters both reinforcing prior attitudes and making a final decision in favour or against the ballot proposal.

In this sense, we can expect to observe attitude polarisation not only in the experimental setting but also over time.

HYPOTHESIS 4: as the campaign approaches the referendum day, voters' attitudes will polarise as a consequence of both reinforcement of prior attitudes and decision-making.

2.3. Design[3]

The study was conducted at BLUE Lab, University of Edinburgh, from 28 April to 2 May, 2014. Each session lasted approximately 45 minutes, divided in to around 15 minutes to read a set of texts and 30 minutes to reply to a battery of questions. Participants were randomly assigned to three groups of around 60 subjects each, and they performed the tasks individually through web-based software. Randomisation was carried out within sessions (for the instructions, the information stimuli and the main questions presented in the experiment, see Appendix B at the end of Chapter 3).

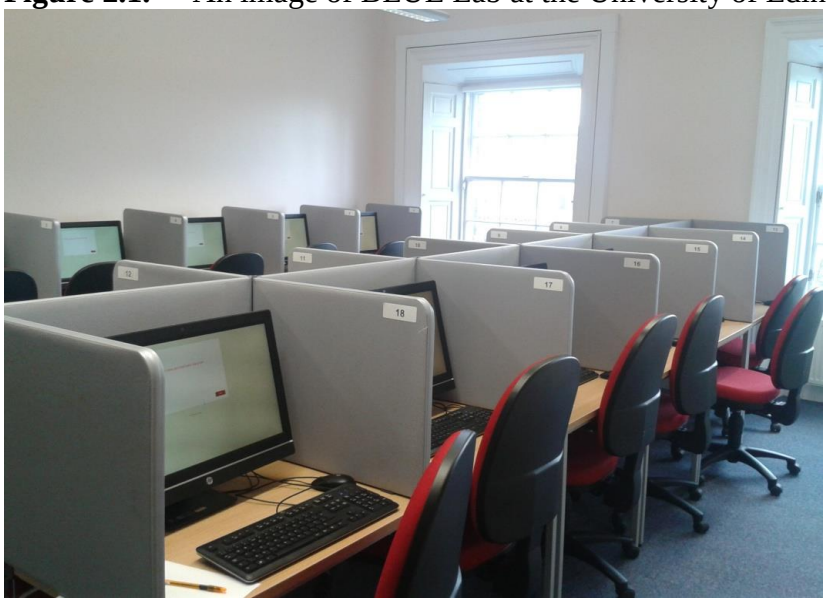
The pool consisted of 176 participants – mostly university students (median age = 22) and females (68 percent) – who were all resident in Scotland (median number of years living in Scotland = 4) and eligible to vote in the referendum. Around 27 percent described themselves as either Scottish or 'equally Scottish and British', 30 percent as British, and the rest as neither Scottish nor British[4]. Although most of the participants thought of Scottish independence as a particularly relevant issue, a large share was still uncertain about how to vote (40 per cent of

[3] The experiment was jointly designed and conducted with Céline Colombo. For the instructions and the texts presented in the experiment, see Appendix B at the end of Chapter 3.

[4] This category included some British students and some European students who were nonetheless eligible to vote since they were living in Scotland (for the distribution across groups, see table 2.10 in Appendix A).

the participants were undecided and an additional 29 per cent indicated that they were still willing to change their mind).

Figure 2.1. An image of BLUE Lab at the University of Edinburgh

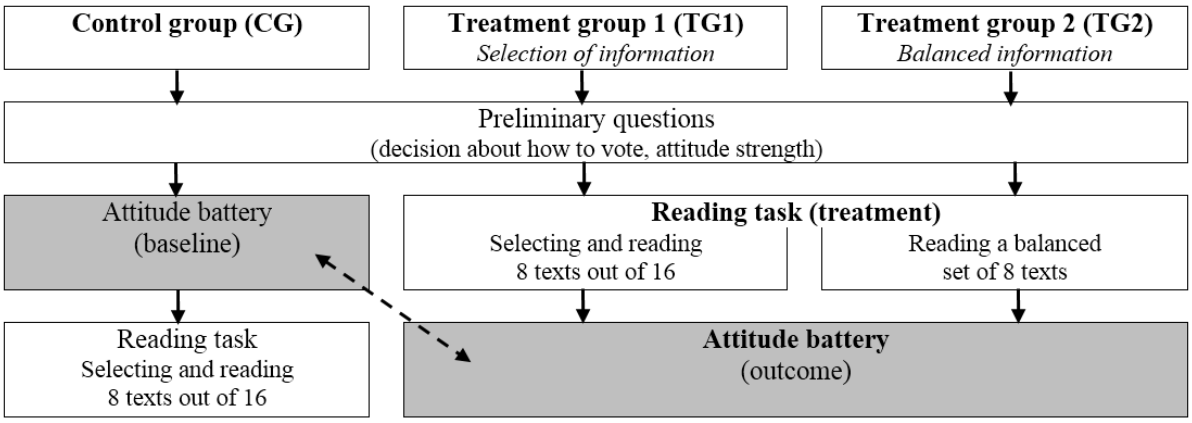


2.3.1. A between-subject design

Within each session, the participants were randomly assigned to a control condition, in which they were asked to report their attitudes towards Scottish independence *before* reading a set of texts, or to either of two treatment conditions, in which the same attitude battery was presented *after* reading the texts. The adoption of such a between-subject design aims to rule out learning issues and confounding factors that are typically associated with within-subject designs (see Morton and Williams 2010: 92; Druckman et al. 2011: 18). In within-subject experiments, the fact that participants generally report their attitudes before exposure to information stimuli can prove problematic, because "prior beliefs serve as a cognitive anchor that impedes appropriate and efficient updating based on new information" (Levy 2013, 310). On the contrary, the compar-

ison between groups excludes the presence of these cognitive anchors and provides more confidence that the eventual variation in the outcome of interest depends solely on the effect of the treatment (i.e. the information material).

Figure 2.2. Design of the experiment



In the first stage of the experiment all the participants replied to a preliminary set of questions including a political-knowledge battery, a question on the level of decision about how to vote in the referendum[5] and an 11-point attitude relevance scale.[6] This scale was introduced as a proxy for measuring participants' strength of prior attitudes.[7]

[5] The question was worded as follows: 'Which of the following statements best applies to you and how you intend to vote in the referendum on Scottish independence?' Answers: 1) 'I have definitely decided how I will vote and will not change my mind'; 2) 'I have almost decided how I will vote, but I may still change my mind'; 3) 'I have an idea of how I will vote, but I have not yet made a final decision'; and 4) 'I have not made any decisions about how I will vote'. Since only 13% replied to answer number 4, for statistical purposes answers 3 and 4 have been recoded into the same category.

[6] The question was worded as follows: 'How much do you personally care about the issue of Scottish independence?' Answers ranged from 0 ('do not care at all') to 10 ('absolutely care'). Mean = 7.25, SD = 2.13.

[7] The question on attitude relevance provides a proxy for participant's strength of priors, since, by definition, in a between-subject experiment *prior* attitudes cannot be measured. As discussed in the literature, attitude relevance constitutes one of the key dimensions that has been frequently associated with attitude strength (see for example Krosnick and Petty 1995: 5-7).

In the second stage, those assigned to Treatment Group 1 ('TG1') chose and read eight texts based on a list of 16 headlines presented in a random order. This list corresponded to eight texts in favour of independence and eight texts against independence (see Figure 2.3). The task was carried out sequentially, meaning that the participants selected one headline, read the corresponding text, and then repeated the same task seven additional times.

In Treatment Group 2 ('TG2') the participants simply read four texts supporting independence and four texts against independence presented sequentially in random order. This set of eight texts was a selected subgroup of the 16 texts provided in TG1 and included arguments supporting the pros and cons of an independent Scotland in relation to general issues, such as the economy, education, and EU membership.

Figure 2.3. A screenshot of the first list of headlines in Treatment Group 1

In the third stage, immediately after reading the information material, those assigned to treatment replied to an attitude battery of six 11-point-scales, which aimed to measure how 'extreme' participants were in either supporting or rejecting independence (see list of questions in Appendix A). In line with previous studies (Taber and Lodge 2006, 758), these scales have been combined into an additive index of attitude extremity rescaled from -1 to 1, with values below 0 corresponding to con attitudes and values above 0 corresponding to pro attitudes.

The participants in the control group performed the same task as in TG1, but with the crucial difference that stages two and three were presented in reverse order. In other words, participants replied to the attitude battery first, and subsequently selected and read the texts. Pre-reading attitudes in the control group, therefore, provides the baseline against which to compare eventual changes in post-reading attitudes in the treatment conditions.

2.3.2. The information material

All the texts provided in the experiment had been created on the basis of a content analysis of Scottish and British daily newspapers, online news websites, and policy reports published between September 2013 and April 2014. The information material was pre-tested in a pilot survey and with expert interviews in order to present only the strongest arguments from both sides of the campaign. Each text contained around 200 words with no mention of media sources, political candidates or political parties. This format aimed to remove possible 'cueing' effects, deriving for example from media cues (Iyengar and Hahn 2009) or party cues (Brader, Tucker, and Duell 2012; De Sio et al., 2013; Druckman, Peterson & Slothuus, 2013). Crucially, during the experiments the participants were clearly instructed that the information provided to them to read was in no way fictional, and only arguments taken from publicly available sources were presented.

2.3.3. Pre-referendum follow-up survey and panel data

Around four months after the experiment, in the two weeks immediately preceding the referendum, the participants were invited to take part in an online follow-up survey, which included a single 11-point attitude scale that was included also in the experimental questionnaire (an alpha test confirms that this scale and the extremity index are strongly correlated, alpha=0.91).[8] Around half of the entire pool participated on a voluntary basis, with a fairly equal distribution across the three groups (53 percent from the control group, 42 percent from TG1 and 59 percent from TG2). Although participants' self-selection into the follow-up survey limits the generalisability of the findings, these data contribute to understanding how attitudes changed over time, since all the answers in the experiment and in the survey were matched on the individual level.

Additional data from the British Election Study (BES) internet panel (Fieldhouse et al. 2015) provide further external validity to the analysis of attitude change over time. In the following analysis, I will consider two waves that were conducted almost at the same time of the experiment and the follow-up survey: Wave 2 (May/June 2014) and Wave 3 (September/October 2014). The sample (N=4390) includes only Scottish residents who completed both and replied to an 11-point attitude scale on Scottish independence.[9] Although the panel did not include a measure for attitude strength, it included a standard question on voting intentions,

[8] The question was worded as follows: 'How strongly do you agree or disagree with the fact that Scotland should be an independent country?' Answers have been rescaled from -1 ('strongly disagree') to 1 ('strongly agree'), with value 0 indicating a neutral position.

[9] The questions were worded as follows. Wave 2: 'How happy or how disappointed would you be if the "No" side won the referendum?'; Wave 3: 'How happy or how disappointed are you that Scotland voted to remain part of the United Kingdom?'. Answers ranging from 0 ('extremely disappointed') to 10 ('extremely happy'), have been reversed and rescaled from -1 ('extremely happy') to 1 ('extremely disappointed').

from which the respondents' level of decision about how to vote can be derived.[10] The analysis of BES data allows comparison of the patterns of attitude change identified in the experimental setting with a broader pattern of attitude change from a representative sample of voters.

2.4. Results

In line with the theoretical framework, the presentation of the results will focus, firstly, on the mechanisms of information processing; secondly, on the effects of information between groups, and; thirdly, on the change of attitudes over time

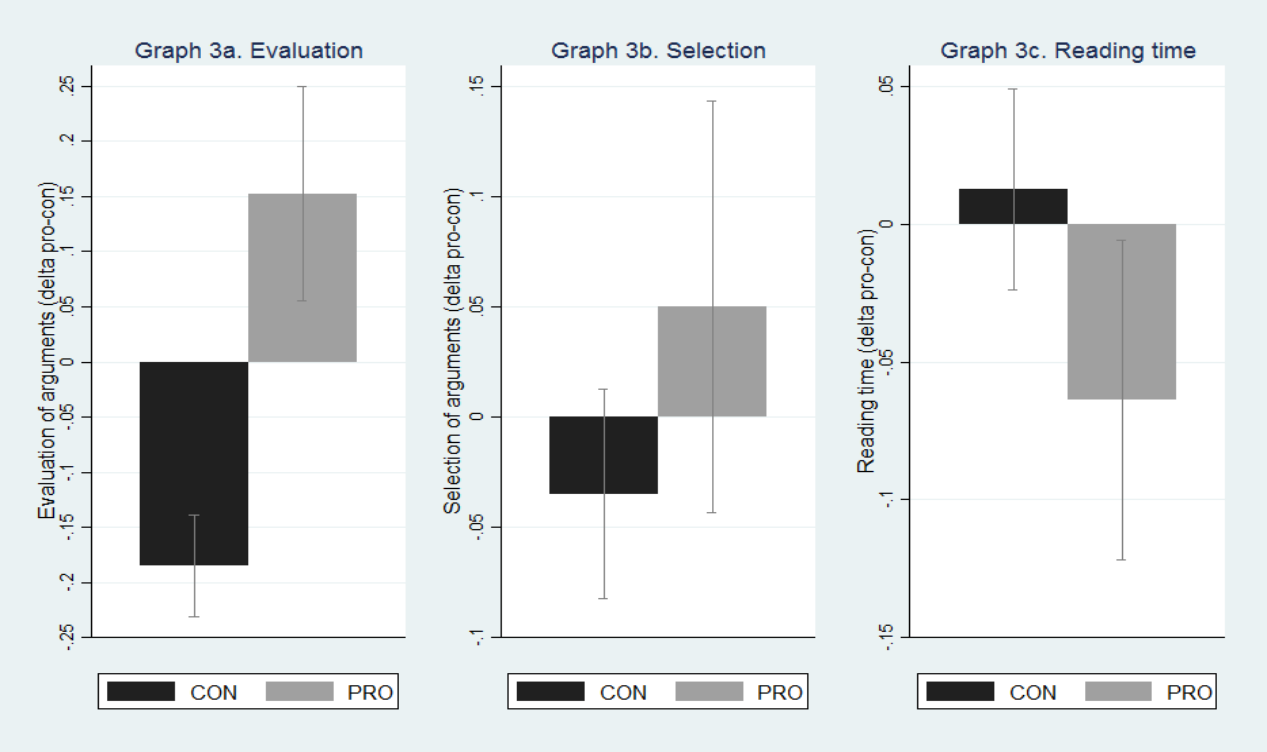
2.4.1. Information processing

Figure 2.4 illustrates the mean values of three dependent variables – evaluation of the arguments, selection of the texts, and reading time – by prior attitudes. Evaluation of the arguments has been measured by asking the participants to rate the strength of the arguments on a 0-10 scale after reading each text.[11] For each variable, values have been rescaled from -1 to 1, with positive values on the Y-axes indicating higher rating of pro vs. con arguments (Graph 3a), selection of more pro than con arguments (Graph 3b), and time spent more on pro than con arguments (Graph 3c). The reverse patterns apply for negative values (for a detailed description of the variables, see Table 2.3 in Appendix A).

[10] In Wave 2, those who declared the intention to vote either 'yes' or 'no' have been assigned value 1 ('decided'), while those who did not know how to vote have been assigned value 0 ('undecided').

[11] Following Taber and Lodge (2006, 759), the participants were explicitly encouraged to keep their opinions separated from the evaluation of the arguments. The question was worded as follows: 'How weak or strong do you believe the argument contained in this text is? Please note: we want to know how weak or strong you believe the argument is, not whether you agree or disagree with the argument'.

Figure 2.4. Evaluation, selection and time spent on the information material by prior attitudes (mean values)



Note. Positive values on the Y-axes indicate higher rating of pro vs. con arguments (Graph 3a), selection of more pro than con arguments (Graph 3b), and time spent more on pro than con arguments (Graph 3c); and vice versa for negative values. Participants from control group only (N=58), with 90% confidence intervals. For t-tests of the differences between mean values, see Table 2.4 in Appendix A.

Graph 3a indicates that the participants gave a significantly higher rating to the arguments that supported their priors, meaning that supporters of independence found pro arguments stronger than con arguments, and vice versa for those who preferred Scotland to remain in the UK. Graph 3b shows a similar pattern with regard to the selection of the texts. In this case, both pro-independence and pro-union supporters selected more reinforcing than challenging texts. When reading time is considered, however, Graph 3c indicates that the participants actually spent *more* time reading counter-attitudinal arguments. Although confidence intervals in Graphs 3b and 3c overlap, one-tailed t-tests confirm that the differences between mean values are significant at the 0.1 and the 0.05 levels respectively (see Table 2.4 in Appendix A).

Further analysis with regression models in Table 2.1 confirms that prior attitudes in the control group were significantly correlated with both evaluation (Columns 1 and 2) and selection (Columns 3 and 4) of the texts. These correlations demonstrate that also in a context of issue voting and in the absence of explicit party cues, participants displayed an attitude congruence bias (H1A) and a confirmation bias (H1B), in line with previous research on motivated reasoning.

Table 2.1. Correlations between prior attitudes and evaluation of the arguments, selection of the texts, and reading time

	Evaluation		*Selection*		*Time*	
	(1)	(2)	(3)	(4)	(5)	(6)
Prior attitudes	0.37***	0.37***	0.12**	0.12**	-0.07*	-0.06*
	(0.046)	(0.046)	(0.052)	(0.052)	(0.039)	(0.039)
Prior knowledge of the arguments		-0.09		0.01		-0.07
		(0.076)		(0.086)		(0.064)
Constant	-0.03	-0.04	0.01	0.01	-0.02	-0.03
	(0.024)	(0.025)	(0.026)	(0.028)	(0.020)	(0.021)
R^2	.523	.534	.091	.092	.050	.071
N	59	59	59	59	59	59

Note: OLS regression models, participants from control group only. **Dependent variables**: mean rating of pro arguments minus mean rating of con arguments (Columns 1 and 2); number of selected pro arguments minus number of selected con arguments (Columns 3 and 4); mean time spent reading pro arguments minus mean time spent reading con arguments (Columns 5 and 6). All values rescaled from -1 to 1. **Prior attitudes**: values from -1 (strongly against independence) to 1 (strongly in favour of independence). **Prior knowledge**: continuous variable from -1 (knowledge of only con arguments) to +1 (opposite pattern). Standard errors in parentheses. * $p \leq 0.1$, ** $p < 0.05$, *** $p < 0.01$

The negative regression coefficients in Column 5 and 6 (although marginally significant at the 0.1 level) indicate that the more strongly voters supported independence, the more time they spent reading the arguments against independence. Further analysis on the treatment groups (see Table 2.5 in Appendix A) reveals that a negative correlation also occurred in the opposite direction, since the more time the participants spent on pro arguments, the more likely they were to subsequently report unfavourable attitudes towards independence (and vice versa).

The combination of these bi-directional negative correlations supports the idea that the participants spent more time on counter-attitudinal evidence in order to reject it and preserve their original opinions, in line with the hypothesised disconfirmation bias (H1C).

Notably, the correlations in Table 2.1 still hold after controlling for participants' prior knowledge[12] of the information material (Columns 2, 4, and 6). The introduction of this control variable provides more confidence that the documented variation in information processing – and especially in reading time – originates from motivational processes, instead of simply knowledge differences.

2.4.2. Effects of information

In the second part, I analysed the differences in the distribution of attitudes between groups, starting with an examination of the two treatment conditions. The analysis of the selection condition (TG1) reveals not only that the majority of the participants in this group selected the texts evenly – with more than 60 percent choosing a set of four pro and four con arguments – but also that the post-reading attitudes of those who selected an unbalanced set of texts did not correlate with selection of the texts (see Model 7 in Table 2.5 in Appendix A). In other words, participants' attitudes in TG1 cannot be inferred from how they chose the information material. This finding suggests that either the individuals in this group did not display a confirmation bias or that they indeed selected the evidence in line with (unreported) prior attitudes, but then they changed their mind when they actually reported their post-reading attitudes. Although these hypotheses cannot be tested here, they suggest that further inquiry should be dedicated to exploring confirmation biases by not relying solely on within-subject designs.[13]

[12] Prior knowledge was measured by asking the participants after each text whether they had already heard the argument contained in the text.

[13] In the control group, the occurrence of a correlation between prior attitudes and selection of the texts might have been partially 'induced' by the experimental design. The fact that the participants had to

When the two treatment conditions are compared, regression analysis shows that attitudes changed in the same direction in both treatment groups (see Table 2.6 in Appendix A), and that no significant differences existed between the two treatment groups with regard to the distribution of attitudes.[14] These results support the assumption of Hypothesis 2A that the possibility to select different messages should not change substantially the effects of information, as long as voters have access to a balanced set of arguments. Given this lack of differences between treatment conditions and for statistical purposes, in the remaining part of the analysis the two treatment groups have been combined in a single group.

Table 2 presents the results from regression analysis of attitude extremity on provision of information. The dependent variable corresponds to the extremity index folded at the zero point, thus values range from 0 (maximum moderation) to 1 (maximum attitude extremity either in favour or against independence). 'Information' corresponds to a dummy with value 1 for assignment to treatment. The models estimate whether being in the treatment conditions was associated with a significant increase in attitude extremity, controlling also for the key elements of Scottish identity and political knowledge.

As the first model indicates, when all the participants are taken into account, exposure to information is not associated with a significant variation in attitude extremity. A similar lack of correlations occurs when Scottish identity and political knowledge are introduced in Model 2, thus Hypothesis 2 cannot be confirmed. However, this lack of variation might depend on opposite trends at the sub-group level that cancel each other out once considered in aggregate.

explicitly report their attitudes before reading could have prompted them to seek out confirmatory evidence either for consistency reasons or for reducing potential cognitive dissonance arising from exposure to contrary arguments. This explanation suggests that previous studies relying on within-subject designs might have overstated the occurrence of confirmation biases.

[14] For statistical proof, see Table 2.7 in Appendix A.

Indeed, this appears to be the case when interactions with attitude relevance and decision levels are introduced in the analysis.

Table 2.2. The effects of information on attitudes towards Scottish independence

	One-sided attitude extremity					
	(1)	(2)	(3)	(4)	(5)	(6)
Information (treatment groups)	-0.01 (0.044)	-0.02 (0.041)	0.28** (0.136)	0.28** (0.135)	0.10* (0.058)	0.09 (0.056)
High relevance			0.86*** (0.146)	0.75*** (0.153)		
Information *high relevance			-0.42** (0.182)	-0.42** (0.180)		
Being decided					0.48*** (0.074)	0.45*** (0.072)
Information *being decided					-0.21** (0.091)	-0.23** (0.089)
Scottish identity		0.11* (0.057)		0.03 (0.056)		0.11** (0.050)
Political knowledge		0.46*** (0.106)		0.24** (0.109)		0.31*** (0.098)
Constant	0.41*** (0.036)	0.16** (0.064)	-0.20* (0.108)	-0.25** (0.111)	0.19*** (0.048)	0.03 (0.064)
R2	.001	.128	.229	.252	.292	.358
N	176	176	175	175	166	166

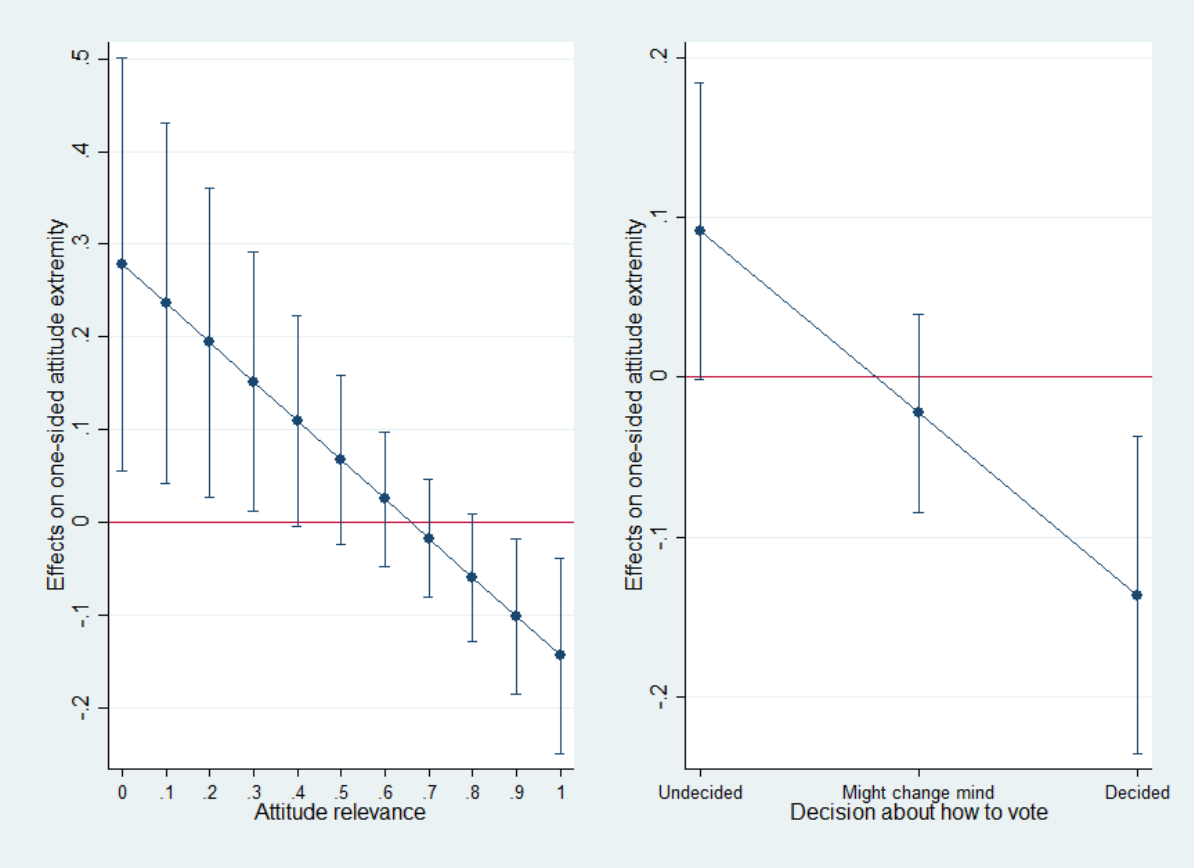
Note. OLS regression models. Dependent variable: one-sided attitude extremity, values from 0 (maximum moderation) to 1 (maximum attitude extremity either in favour or against independence). Information: dummy variable with value 1 for assignment to treatment.
Attitude relevance: 11-point scale, rescaled from 0 (low relevance) to 1 (high relevance). Decision about how to vote: 3 categories treated as a continuous variable, with values 0 (undecided), 0.5 (might change mind), and 1 (decided). Scottish identity: dummy variable. Political knowledge: additive index of 18 questions on factual knowledge about UK politics and the Scottish independence referendum, with values rescaled from 0 (minimum knowledge) to 1 (maximum).
Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Models 3 and 4 reveal that information significantly increased attitude extremity among those who cared less about Scottish independence, while, on the other hand, it moderated the attitudes among those who cared the most about it, as the negative interaction coefficients indicate. A similar pattern occurs when interactions with decision levels are introduced in Models

5 and 6. A graphical illustration of marginal effects contributes to better understanding these patterns of attitude change.

Both graphs in Figure 2.5 clearly highlight that provision of information affected participants' attitudes in opposite directions depending on the moderators: while reading a mixed set of arguments increased attitude extremity among low-relevance and undecided participants (although the latter effect is significant only at the 0.1 level), on the other hand, it significantly reduced attitude extremity among high-relevance and decided participants.

Figure 2.5. Average marginal effects of information on attitude extremity by attitude relevance and decision levels

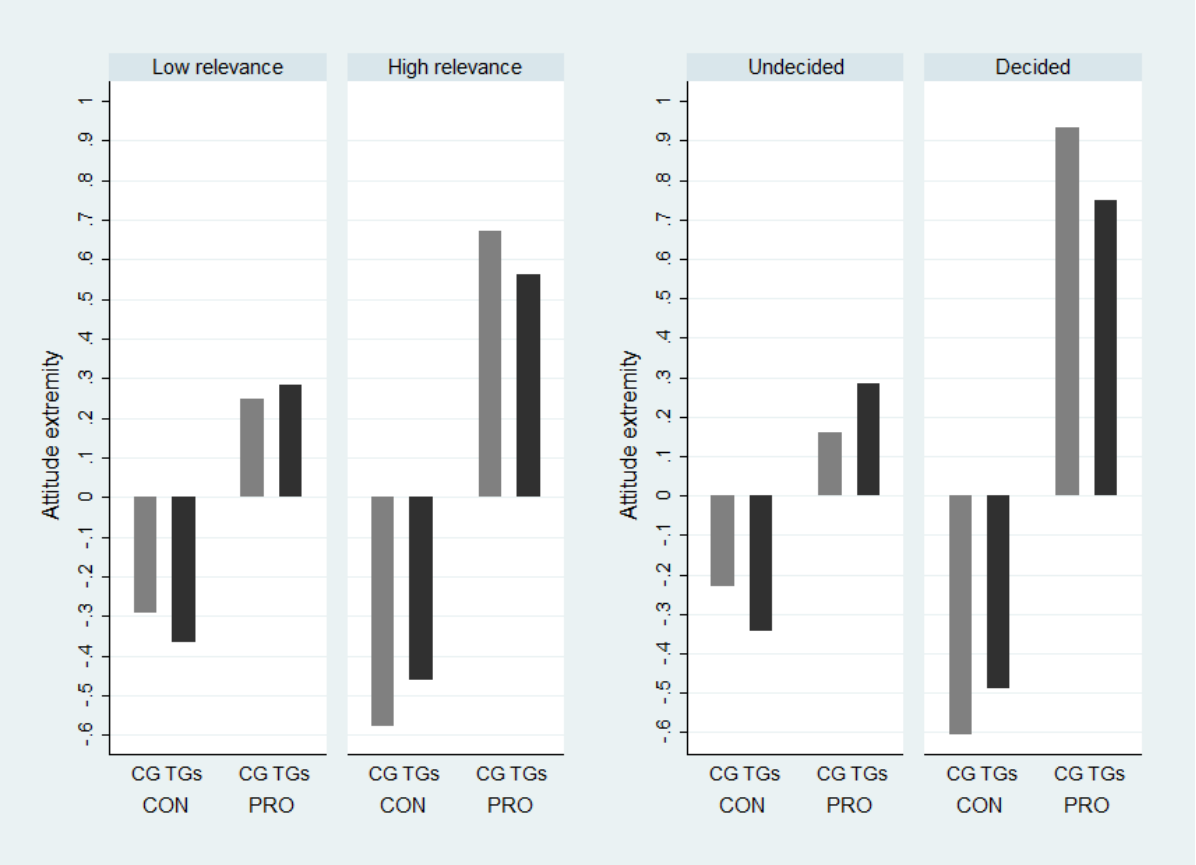


Note: Attitude relevance: from 0 (low) to 1 (high). Calculations based on full Models 4 and 6 in Table 2, with 90% confidence intervals.

Still, the analysis conducted so far does not suffice to identify polarisation, since variation in one-sided attitude extremity can result from multiple combinations, such as a shift in the support towards only one side of the referendum campaign. Following Bullock's (2009: 1112)

investigation, for polarisation to occur, attitudes need to become more extreme on *both* sides of the referendum campaign. To test for this occurrence, therefore, I examined whether the mean values of pro and con attitudes along the original extremity index differed between control and treatment conditions. This test, combined with previous regression analysis, provides a proxy for polarisation, since a measure of attitude polarisation *at the aggregate level* is still surprisingly lacking in the literature (for a discussion on how to conceptualise and measure polarisation, see Appendix C).

Figure 2.6. Effects of information on attitude extremity by attitude relevance and decision



Note. CG = Control Group, TGs = combined Treatment Groups. Attitude extremity on Y-axis: from -1 (against independence) to 1 (in favour of independence).

As Figure 2.6 reveals, the patterns of attitude change identified in previous regression models derived from attitudes becoming either more extreme or more moderate on *both* sides of the attitude spectrum. Graph bars highlight that low-relevance and undecided participants

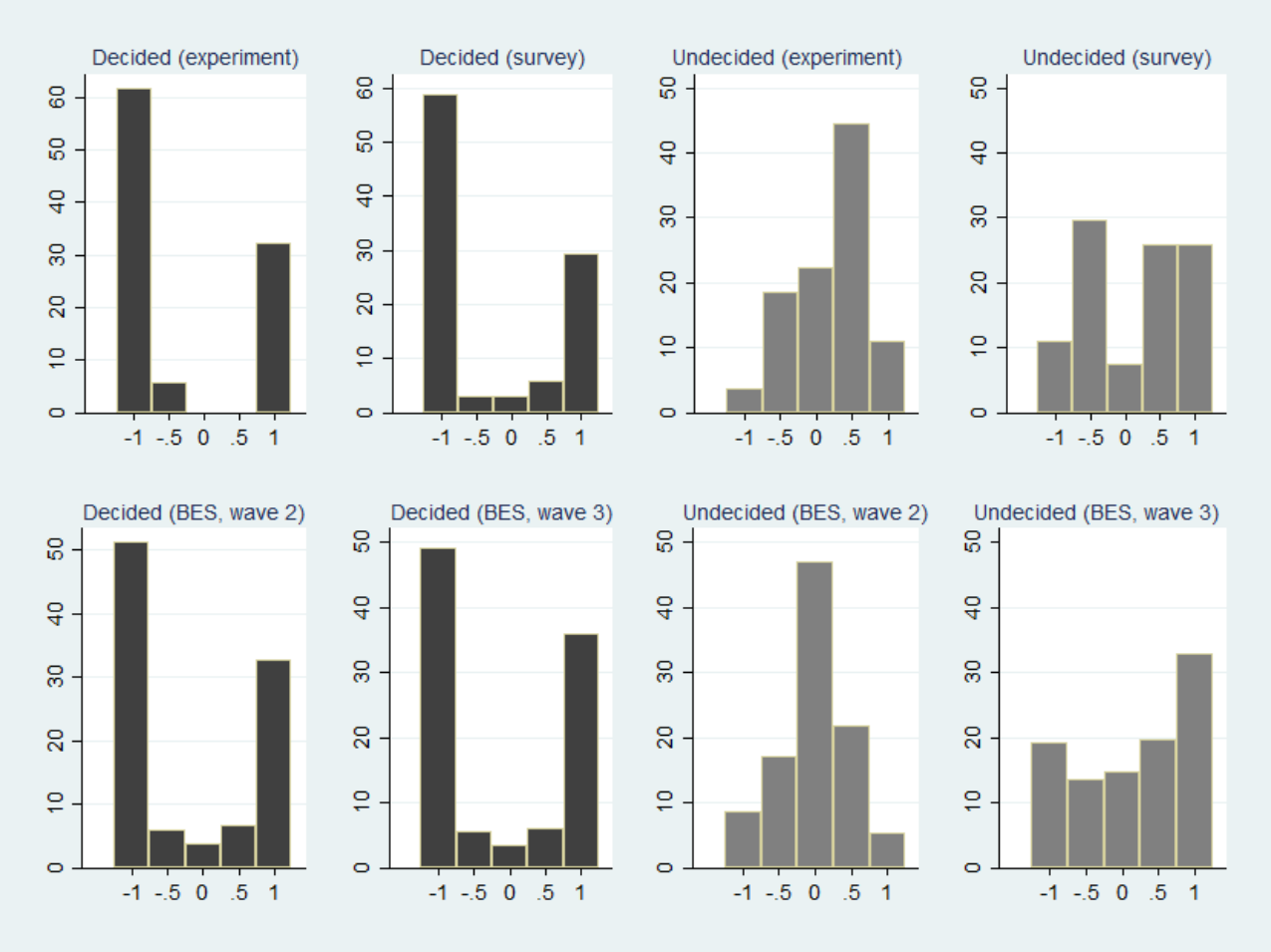
genuinely polarised after exposure to information, while those who cared more about independence and especially those who had already decided how to vote 'depolarised', since they both supported *and* opposed independence less forcefully than in a control condition of no information.

These unexpected findings of polarisation and depolarisation contradict not only the general polarisation hypothesis (H2), but also the predictions about the role of the moderators (H3), since exposure to information moderated instead of strengthening the attitudes among the most engaged participants – i.e. high-relevance and decided voters. Although this pattern seems hard to reconcile with the mechanisms of motivated reasoning identified above, in the discussion part it is argued that less 'normatively charged' interpretations of motivated reasoning can still accommodate these findings.

2.4.3. Over time effects

Data from the follow-up survey and the BES panel add a final piece to the puzzle of attitude formation in a referendum campaign. Firstly, the analysis of the follow-up survey highlights that four months after the experiment only a handful of participants (9 percent) switched their positions (i.e. they supported independence after being against it, or vice versa), and 16 percent moderated their attitudes. On the contrary, the largest share of the pool (around 40 percent) developed more extreme attitudes, while 33 percent did not change their mind at all. The combination of these changes at the individual level resulted in an aggregate effect of attitude polarisation, since, after four months, the participants supported and opposed the idea of Scotland leaving the United Kingdom even more forcefully than before. The same pattern of attitude polarisation occurred also within a larger representative sample of voters, as confirmed by BES data (see Tables 2.8 and 2.9 in Appendix A).

Figure 2.7. Over-time change in the attitudes towards independence by decision levels



Note. Y-axis: percentages of respondents. **First row**: participants who took part in both the experiment (May 2014) and the follow-up survey (September 2014), N=88. X-axis: values recoded in 5 categories, from -1 (strongly disagree with independence) to 1 (strongly agree). **Second row:** British Election Study internet panel. Only Scottish respondents who participated in both Wave 2 (May/June 2014) and Wave 3 (September/October 2014), N=4390. X -axis: values recoded in 5 categories, from -1 (extremely happy about 'No to independence') to 1 (extremely disappointed about 'No to independence').

However, when the participants are divided by decision levels, data in Figure 2.7 show that only undecided voters from both the follow-up survey (first row) and the BES panel (second row) significantly polarised over time. On the contrary, decided voters from both datasets did not depolarise over time. As the striking similarities in Figure 2.6 highlight, those who had already decided how to vote four months before the referendum day barely changed their mind

over the course of the campaign. Further analysis of the follow-up survey reveal similar patterns of attitude change when participants are divided by attitude relevance (see Tables 2.8 and 2.9 in Appendix A).[15]

The analysis of both follow-up survey and BES data confirms that voters increasingly polarised as the campaign approached the referendum day, in line with Hypothesis 4. However, while polarisation occurred especially among the undecided and those who cared less about independence, the depolarisation pattern identified in the experiment among high-relevance and decided voters did not find support over-time.

2.5. Discussion

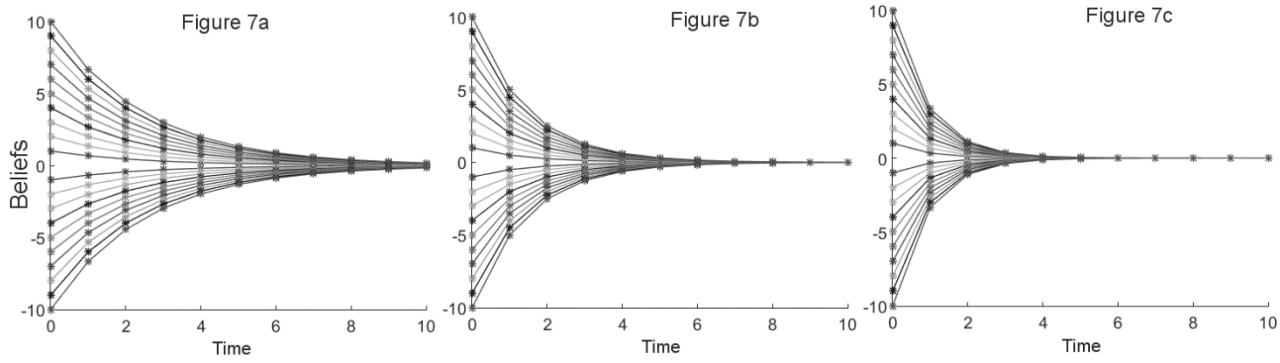
In research on motivated reasoning and public opinion, it is generally assumed that 'unbiased' individuals should respond to new evidence in line with Bayesian models of belief updating (Bartels 2002; Gerber and Green 1999; Redlawsk 2002). A common assumption of these models is that individuals evaluate new evidence independently from their priors (Fischle 2000; Taber and Lodge 2006), thus, "if people were truly unbiased processors of the same political information, they should ultimately *converge* in their judgments" (Mutz 2006, 231). Yet, this assumption proves problematic not only from the perspective of Bayesian statistics (Bullock 2007; 2009), but also from a normative perspective, when applied to a context of political decision making. In such a context, we can question whether it would even be desirable that all voters attribute the same weight to new evidence. Consider the case of an individual who has already dedicated time to evaluate the pros and cons of a referendum proposal and has almost

[15] These patterns are also confirmed when the analysis is restricted to the participants from treatment groups only (see Table 2.8 in Appendix A).

decided how to vote. If she received additional pro and con messages, would a perfectly balanced evaluation of these messages be an indicator of rationality or would it rather be a sign of inconsistency?

Paradoxically, in a two-sided information environment with equally strong pro and con arguments, if voters evaluated new evidence independently from their priors, they would all converge over time to a completely neutral position. Figure 2.8 below illustrates this scenario with three simulations with a group of 20 voters. After repeated exposure to two messages in favour and against an issue, if the voters assign the same weight to both messages and if they update their beliefs according to Bayes' rules, at time *n* they will converge to the mid-point of the scale, *regardless* of their initial priors (for mathematical proof, see Appendix B). The different 'speed' in the convergence rate depends on how certain they are about the reliability of the information sources. Although this result might be desirable in some deliberative settings, in a referendum campaign – or in any electoral contexts in which citizens need to choose between two parties or two presidential candidates – a neutral position would irremediably hinder voters' ability to take sides on voting day.

Figure 2.8. Belief updating after repeated exposure to equally strong pro and con arguments



Note: Simulations of belief updating with a group of 20 voters with initial beliefs distributed from -10 to 10. At each point in time (X-axis) the graph reports posterior beliefs after exposure to two-sided information under condition of Bayesian updating. The difference in the convergence rate depends on how certain voters are about their priors and the reliability of the information sources. In Figure 7a voters are more certain about their priors, while in Figure 7c they are more certain about the information sources. For mathematical proof, see Appendix B.

Clearly, this is not to argue that the evaluation of evidence should be fully subjective. On the contrary, this simple example might support the idea that "Bayes' Rule alone does not provide a complete normative standard" (Taber et al. 2009: 138). The key point of the discussion, however, is that some commonly accepted normative assumptions of belief updating should be relaxed when their consequences for political decision-making are fully considered.

When citizens have to make voting decisions, the key to interpret a rational behaviour seems to lie in the trade-off between accuracy and effort, as already suggested by Stroh (1995). In this sense, a rational decision would correspond to the one that allows the maximum degree of accuracy to be reached with the minimum of effort. This decision-making perspective contributes to understanding also why low-relevance and undecided participants in this study polarised in response to a mixed set of arguments. Reading a brief set of arguments about the pros and cons of Scottish independence helped this group of participants to form an opinion on the referendum debate, thus developing more extreme attitudes in both the experimental setting and over the course of the campaign as the consequence of a natural process of decision making. As suggested by Kuhn and Lao (1996, 117), for this group of voters, attitude polarisation can be explained as a pattern of "articulating a position".

On the other hand, attributing more weight to confirmatory over counter-attitudinal evidence does not necessarily correspond to being *blind* to this type of evidence. In this sense, it is plausible that those who cared more about Scottish independence and those who had already decided how to vote moderated their positions after exposure to a mixed set of arguments, even if they genuinely found that the arguments from their preferred side of the campaign were more convincing. This depolarising effect not only represents a novel finding in the literature on motivated reasoning, but also suggests that stimulating voters to consider both sides of a debate can reach the desired effect of smoothing extreme attitudes in the electorate. However, as the results from both the follow-up survey and the BES panel indicate, such moderation might have

been the result of a temporary exposure to counter-attitudinal arguments in the experimental setting. Once the participants returned to a 'natural' information environment predominantly populated by attitude-reinforcing messages, this effect disappeared. This finding suggests that for enduring moderation to occur, exposure to counter-attitudinal arguments needs to be repeated over time, as recently demonstrated by Redlawsk and colleagues (2010).

2.6. Conclusions

By exploring how political information affects attitude formation in the as yet unexplored context of issue voting, this study brings both an empirical and a theoretical contribution to research on motivated reasoning and public opinion. The analysis of an original laboratory experiment, a follow-up survey and a nationally representative panel conducted during the campaign for the 2014 Scottish independence referendum provides three major sets of findings. Firstly, the analysis on the individual level confirms that the main mechanisms of motivated reasoning apply also in a referendum campaign and does so even in the absence of explicit party cues, since the participants displayed an attitude congruence bias in the evaluation of the evidence, a confirmation bias in the selection of the texts, and a disconfirmation bias in response to counter-attitudinal arguments.

Secondly, the results from a comparison between groups reveal that, contrary to previous findings, provision of information does not lead to uniform patterns of attitude change, since attitudes either polarised or depolarised depending on the moderating elements of attitude relevance and decision level. While undecided voters and those who cared less about Scottish independence polarised after reading a mixed set of arguments, decided voters and those who cared more about independence depolarised, since they moderated their attitudes on both sides of the campaign. These effects occurred regardless of the possibility to select the information

material, in line with recent findings showing that evaluation of evidence rather than selection drives the process of belief updating (Leeper 2014).

Finally, the analysis of individual attitude change over time confirms that, as the campaign approached the referendum day, participants developed stronger attitudes in line with their priors, thus leading to over-time attitude polarisation. However, while a polarisation trend took place especially among low-relevance and undecided participants as result of the decision-making process, the depolarisation pattern identified in the experimental setting among high-relevance and decided voters vanished over time, since these voters did not moderate their attitudes by the time the referendum took place.

From a theoretical perspective, these findings call for a reconsideration of normative models of belief updating in light of the consequences of these models for voting. In line with recent theoretical contributions to motivated reasoning (Leeper and Slothuus 2014), it is argued that motivated voters do not necessarily need to be biased. On the contrary, voters can rationally select and evaluate information in line with their priors if the ultimate goal of belief updating is making a voting decision. Within this perspective, even attitude polarisation should be seen under a more positive light. If under particular circumstances 'unbiased' information processing can paradoxically prevent decision-making, a certain degree of polarisation might be the inevitable price to pay for guaranteeing a healthy degree of electoral participation.

Appendix A

Table 2.3. Dependent variables used in regression models on prior attitudes

Variable	*Description*	*Minimum value*	*Mid-point*	*Maximum value*	*Mean (st. dev)*
Evaluation	Mean rating of pro arguments minus mean rating of con arguments	-1 (maximum rating of con arguments and minimum rating of pro arguments)	0 (equal rating of pro and con arguments)	1 (maximum rating of pro arguments and minimum rating of con arguments)	-0.038 (0.267)
Selection	Number of selected pro arguments minus number of selected con arguments	-1 (selection only of con arguments)	0 (selection of the same number of pro and con arguments)	1 (selection only of pro arguments)	-0.028 (0.196)
Time	Mean time spent reading pro arguments minus mean time spent reading con arguments	-1 (100 per cent of reading time dedicated only to con arguments)	0 (reading time spent equally on pro and con arguments)	1 (100 per cent of reading time dedicated only to pro arguments)	-0.034 (0.134)

Table 2.4. Evaluation, selection, and reading time of the texts by prior attitudes

	Control group, all respondents (N=58)		
	Pro attitudes	Con attitudes	*Difference pro - con (absolute values)*
Evaluation	0.15 (0.22)	-0.19 (0.18)	***0.34*** *(p < 0.01)*
Selection	0.05 (0.22)	-0.03 (0.19)	***0.08*** *(p=0.07)*
Time	-0.06 (0.13)	0.01 (0.14)	***0.07*** *(p=0.04)*

Note. The table reports mean values with standard deviations in parentheses. For a complete description of the variables, see Table 2.3 in Appendix A. P-values for one-tailed t-tests.

Table 2.5. Regressions of attitude extremity on evaluation of information, reading time, and selection of the texts (participants from treatment groups only)

	Attitude extremity						
	TG1 (1)	TG2 (2)	TGs (3)	TG1 (4)	TG2 (5)	TGs (6)	TG1 (7)
Evaluation	1.13***	1.56***	1.33***				
	(0.153)	(0.132)	(0.103)				
Reading time				-1.23***	-0.89*	-1.04***	
				(0.445)	(0.514)	(0.337)	
Selection							0.35
							(0.308)
Prior knowledge of the arguments	0.13	0.18	0.15	0.29	0.23	0.28*	0.37*
	(0.140)	(0.123)	(0.095)	(0.182)	(0.230)	(0.14)	(0.190)
Constant	-0.07	0.01	-0.03	-0.14**	-0.01	-0.07	-0.06
	(0.046)	(0.035)	(0.029)	(0.066)	(0.068)	(0.047)	(0.066)
R2	.529	.724	.615	.175	.082	.124	.082
N	58	59	117	58	59	117	58

Note: Participants from Treatment Group 1 (TG1), Treatment Group 2 (TG2), and combined Treatment Groups (TGs). Dependent variable: attitude extremity index, values from -1 to 1, with values below 0 for con attitudes and values above zero for pro attitudes. For the description of the main independent variables, see Table 2.3 in Appendix A. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2.6. The effects of information on attitudes towards Scottish independence (separated treatment groups)

	One-sided attitude extremity					
	(1)	(2)	(3)	(4)	(5)	(6)
Information	0.01	-0.01	0.41**	0.37**	0.09	0.08
(TG1)	(0.050)	(0.048)	(0.167)	(0.167)	(0.066)	(0.064)
Information	-0.01	-0.03	0.19	0.21	0.10	0.10*
(TG2)	(0.051)	(0.048)	(0.154)	(0.153)	(0.067)	(0.064)
High relevance			0.86***	0.76***		
			(0.146)	(0.154)		
Information TG1			-0.58**	-0.53**		
*high relevance			(0.225)	(0.224)		
Information TG2			-0.31	-0.34*		
*high relevance			(0.202)	(0.202)		
Being decided					0.48***	0.46***
					(0.074)	(0.072)
Information TG1					-0.15	-0.15
*being decided					(0.109)	(0.105)
Information TG2					-0.26**	-0.29***
*being decided					(0.103)	(0.100)
Scottish identity		0.11*		0.03		0.12**
		(0.058)		(0.057)		(0.051)
Political		0.46***		0.23**		0.30***
knowledge		(0.107)		(0.110)		(0.098)
Constant	0.41***	0.16**	-0.20*	-0.24**	0.19***	0.03
	(0.036)	(0.064)	(0.108)	(0.111)	(0.048)	(0.064)
R2	.001	.129	.237	.257	.300	.368
N	176	176	175	175	166	166

Note. OLS regression models. Dependent variable: one-sided attitude extremity, values from 0 (maximum moderation) to 1 (maximum extremity either in favour or against independence). Information: nominal variable with value 0 for control group (reference category), value 1 for Treatment Group 1 (TG1), value 2 for Treatment Group 2 (TG2). For the description of the other variables, see Table 2.2. Standard errors in parentheses. * $p \leq 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2.7. Test of the differences between treatment groups

	One-sided attitude extremity					
	(1)	(2)	(3)	(4)	(5)	(6)
Reference cat.= TG1						
No information (Control group)	-0.01 (0.050)	0.01 (0.048)	-0.41** (0.167)	-0.37** (0.167)	-0.09 (0.066)	-0.08 (0.064)
Information (TG2)	-0.02 (0.051)	-0.02 (0.048)	-0.22 (0.17)	-0.16 (0.167)	0.01 (0.065)	0.03 (0.063)
High relevance			0.28 (0.171)	0.22 (0.173)		
Reference cat.= TG1*high relevance						
Control group *high relevance			0.58** (0.225)	0.53** (0.224)		
Information (TG2) *high relevance			0.26 (0.220)	0.19 (0.222)		
Being decided					0.33*** (0.080)	0.31*** (0.077)
Reference cat.= TG1*being decided						
Control group *being decided					0.14 (0.109)	0.14 (0.105)
Information (TG2) *being decided					-0.12 (0.108)	-0.14 (0.104)
Scottish identity		0.11* (0.058)		0.03 (0.057)		0.12** (0.051)
Political knowledge		0.46*** (0.107)		0.23** (0.111)		0.30*** (0.098)
Constant	0.41*** (0.036)	0.15** (0.067)	0.21* (0.127)	0.13 (0.15)	0.28*** (0.046)	0.11 (0.068)
R2	.001	.129	.237	.257	.300	.368
N	176	176	175	175	166	166

Note. OLS regression models. The models test the differences between Treatment Group 1 (TG1) as the reference category and Treatment Group 2 (TG2). Dependent variable: one-sided attitude extremity, values from 0 (maximum moderation) to 1 (maximum extremity either in favour or against independence). For the description of the other variables, see Table 2.2.
Standard errors in parentheses. * $p \leq 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2.8. Aggregate attitude change over time: experiment and follow-up survey

	Experiment (May)	Survey (September)	*Difference experiment-survey (absolute values)*
All groups			
		Two-sided attitudes	
Pro attitudes (all participants) (N=31)	0.63 (0.31)	0.74 (0.27)	***0.11*** *(p = 0.01)*
Con attitudes (all participants) (N=35)	-0.61 (0.24)	-0.69 (0.24)	***0.08*** *(p = 0.03)*
		One-sided attitudes	
All participants (N = 88)	0.53 (0.32)	0.61 (0.31)	***0.08*** *(p < 0.01)*
Low relevance (N=44)	0.42 (0.28)	0.51 (0.27)	***0.09*** *(p = 0.04)*
High relevance (N=44)	0.64 (0.32)	0.71 (0.31)	***0.07*** *(p = 0.08)*
Undecided (N=27)	0.27 (0.25)	0.45 (0.25)	***0.18*** *(p < 0.01)*
Decided (N=34)	0.80 (0.18)	0.78 (0.26)	*0.02 (p = 0.55)*
Treatment groups only			
		Two-sided attitudes	
Pro attitudes (all participants) (N=25)	0.66 (0.31)	0.78 (0.24)	***0.12*** *(p < 0.01)*
Con attitudes (all participants) (N=19)	-0.60 (0.24)	-0.72 (0.22)	***0.12*** *(p = 0.07)*
		One-sided attitudes	
All participants (N = 57)	0.56 (0.32)	0.66 (0.30)	***0.10*** *(p = 0.02)*
Low relevance (N=26)	0.47 (0.29)	0.56 (0.28)	*0.09 (p = 0.16)*
High relevance (N=31)	0.64 (0.32)	0.74 (0.30)	***0.10*** *(p = 0.09)*
Undecided (N=17)	0.35 (0.27)	0.54 (0.23)	***0.19*** *(p = 0.02)*
Decided (N=22)	0.82 (0.18)	0.76 (0.29)	*0.06 (p=0.34)*

Note. The table reports mean values with standard deviations in parentheses only for the participants who took part in both the experiment and the follow-up survey. Two-sided attitudes: values rescaled from -1 (strongly against independence) to 1 (strongly in favour of independence). One-sided attitudes: values folded at the zero point, ranging from 0 (neutral position) to 1 (maximum agreement or disagreement). P-values for two-tailed t-tests.

Table 2.9. Aggregate attitude change over time: British Election Study internet panel

	Wave 2 (May/June)	Wave 3 (September/October)	*Difference Wave 2 – Wave 3 (absolute values)*
		One-sided attitudes	
All respondents (N = 4390)	0.77 (0.32)	0.80 (0.29)	***0.03*** *(p < 0.001)*
Undecided (N=244)	0.22 (0.28)	0.53 (0.34)	***0.31*** *(p < 0.001)*
Decided (N=4146)	0.81 (0.29)	0.82 (0.28)	*0.01 (p = 0.15)*

Note. The table reports mean values with standard deviations in parentheses only for the respondents living in Scotland who participated in both Wave 2 and Wave 3. One-sided attitudes: values folded at the zero point, ranging from 0 (maximum moderation) to 1 (maximum attitude extremity). P-values for two-tailed t-tests.

Table 2.10. Distribution of participants across groups by identity (%)

	Control group (CG)	Selection of information (TG1)	*P-values (TG1 / CG)*	Balanced information (TG2)	*P-values (TG2/CG)*
Scottish	11.9	8.6	*0.762*	20.3	*0.317*
Equally Scottish and British	11.9	15.5	*0.601*	11.9	*1.000*
British	23.7	41.4	*0.050*	23.7	*1.000*
None of these	52.5	34.5	*0.063*	44.1	*0.461*
Total (N)	100 (59)	100 (58)		100 (59)	

Note: P-values for two-sided Fisher's exact test on the differences between pairs of groups. Identity measured with the standard 'Moreno question': "Which, if any, of the following best describes how you see yourself?" Answers recoded in four categories: (1) Scottish/More Scottish than British, (2) Equally Scottish and British, (3) British/More British than Scottish, (4) None of these.

Questions used to create the attitude extremity index:

1. Scotland should become independent even if this resulted in short-term economic losses for Scotland.
2. Scotland should become independent even if this meant losing research funding from UK-based sources and raising tuition fees for Scottish universities.
3. Scotland should become independent even if Westminster granted Scotland the maximum level of devolution.
4. Scotland should remain part of the UK even if the Westminster government decided to leave the EU.
5. Scotland should remain part of the UK even if, as an independent state, it would be wealthier due to its oil reserves and natural resources.
6. Scotland should remain part of the UK even if the Tories will win the 2015 election and continue to be in government.

Answers: 0 (strongly disagree) - 10 (strongly agree)

Appendix B. Bayesian learning

The most common model of Bayesian updating draws on the assumption that both prior beliefs and new information are normally distributed (e.g. Bartels 1993; Gerber and Green 1999; Husted et al. 1995). Drawing on Bullock's (2009) analysis, let us assume that the fact that Scottish independence would be either favourable or unfavourable for Scotland – along a continuum from totally unfavourable to totally favourable – can be expressed with an unknown parameter θ. In line with the normality assumption, a voter's initial belief about Scottish independence will be normally distributed. Thus $\theta \sim N(\hat{\theta}_0,\ \sigma_0^2)$, where $\hat{\theta}_0$ indicates the voter's belief about independence at Time 0, while the variance σ_0^2 measures the *precision* of this belief: as the value of σ_0^2 decreases, the certainty of the voter increases.

In line with the normality assumption, when the voter receives a new message, she assigns the message a value x_1 and she assumes that this message is also drawn from a normal distribution $x_1 \sim N(\theta, \sigma_x^2)$ with mean θ equal to the belief of interest and variance σ_x^2. In this case, the variance indicates how certain the voter is about the reliability of the message: as variance decreases, the reliability of the message increases.

After receiving the message, if the voter updates her prior belief in line with Bayesian updating, according to common calculations (see Lee, 2004: 34-36) it follows that her posterior belief will correspond to $\theta | x_1 \sim N(\hat{\theta}_1, \sigma_1^2)$, where

1a) $$\hat{\theta}_1 = \hat{\theta}_0\left(\frac{\phi_0}{\phi_0 + \phi_x}\right) + x_1\left(\frac{\phi_x}{\phi_0 + \phi_x}\right), \text{ and}$$

1b) $$\sigma_1^2 = \frac{1}{\phi_0 + \phi_x}$$

The parameters $\phi_0 = 1/\sigma_0^2$ and $\phi_x = 1/\sigma_x^2$ correspond to the precisions of the prior belief and the new message.

In a two-sided information environment in which the voter encounters at the same time one message in favour of independence (x_{pro}) and one message against independence (x_{con}), the value of the evidence x_1 can be defined as

2) $$x_1 = \alpha x_{pro} + \beta x_{con}, \text{ where } \alpha > 0 \text{ and } \beta > 0.$$

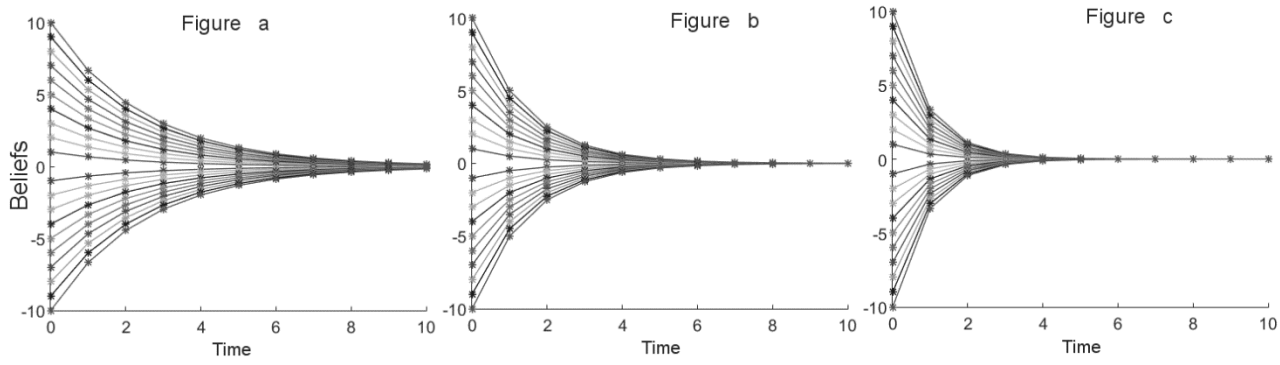
Let us define n as a positive number and assign the voter's prior belief a value ranging from $-n$ (if she believes that independence would be totally unfavourable for Scotland) to n (for the opposite position), with value 0 along a continuum from $-n$ to n indicating a completely neutral position. Equally, the value of the messages will fall within the same interval, with $0 < \alpha x_{pro} \leq n$ for messages supporting independence, and $-n \leq \beta x_{con} < 0$ for messages against independence. If we assume that a) the two messages are *equally* strongly against and in favour of independence (thus $\alpha x_{pro} = |\beta x_{con}|$); b) the voter evaluates evidence independently from prior beliefs, and; c) the voter updates her prior beliefs in line with Bayes' rules, it follows that $x_1 = 0$, thus the voter's posterior belief will be equal to:

3) $$\hat{\theta}_1 = \hat{\theta}_0 \left(\frac{\phi_0}{\phi_0 + \phi_x}\right)$$

For simplicity purposes, let us ignore the precision σ_1^2 of the posterior belief and consider only the value $\hat{\theta}_1$. Assuming that both $\phi_0 > 0$ and $\phi_x > 0$ (i.e. assuming that there will always be an infinitesimal degree of variance in the precision of both voter's belief and the message), by definition the term $\left(\frac{\phi_0}{\phi_0 + \phi_x}\right)$ will always be smaller than 1. Thus, it is clear from Equation 3 that after repeated exposure to equally strong pro and con messages, the voters' posterior beliefs will converge to a completely neutral belief having value equal to 0. The 'speed' of this convergence process will depend only on the reliability of the message, as captured by the

parameter ϕ_x: the higher the variance (i.e. the more unreliable the message) compared to the precision of the voter's prior belief, the slower the convergence rate.

This process can be represented through a simulation with a group of 20 voters with initial beliefs corresponding to integer numbers distributed from -10 to 10 (excluding the value 0). Figure a illustrates the case in which the reliability of the message is lower than the precision of voters' beliefs, thus $\sigma_x^2 > \sigma_0^2$. In particular, the Figure displays the case in which $\sigma_x^2 = 2\sigma_0^2$, thus it follows that $\hat{\theta}_1 = \frac{2}{3}\hat{\theta}_0$.



In Figure b voters are equally certain about the precision of their beliefs and the reliability of the messages, thus $\sigma_x^2 = \sigma_0^2$, and $\hat{\theta}_1 = \frac{1}{2}\hat{\theta}_0$. In this case, voters will converge more quickly to the 0 value, compared to the previous case in Figure a, because they trust more the information source. Finally, the convergence rate will be even faster if voters think that the message is even more 'precise' than their initial positions. This case is shown in Figure c, in which $\sigma_0^2 = 2\sigma_x^2$, thus $\hat{\theta}_1 = \frac{1}{3}\hat{\theta}_0$.

Appendix C. Conceptualising and measuring polarisation

Studies in several disciplines have adopted the concept of polarisation to label a particular distribution of elements in relation, for example, to group interactions, opinion formation, voting behaviour, and income inequality. Ranging from a micro individual level to more structural, aggregate levels, the same concept has been applied to a wide set of phenomena that often do not share the same basic features. What DiMaggio and colleagues wrote twenty years ago still seem to be true: "Given polarisation's prominence in contemporary political discourse, the literature provides strikingly little guidance in defining it" (DiMaggio et al., 1996: 692). Identifying a coherent definition of polarisation, therefore, constitutes a first necessary task, especially if we assume that the outcome of our study will be a polarised distribution of elements. In the next sections, I will attempt to outline a definition that can suit the field of public opinion.

Moving to the extremes

Early studies on risk-taking situations in social psychology (Stoner, 1961; Wallach and Kogan, 1965) have noticed that individuals tend to make more extreme decisions when gather in groups compared to when they decide by themselves. Drawing on these preliminary findings, in 1969 Moscovici and Zavalloni advanced the idea that the group can act as a 'polariser of attitudes' – and not as a 'moderator' of extreme positions as it was generally conceived at the time – claiming that "polarisation and rating extremity are fundamental properties of the attitudinal and judgmental processes in a social interaction situation" (Moscovici and Zavalloni, 1969: 134). The concept of polarisation, therefore, was associated with the idea of *moving to the extremes* along a spectrum of possible attitudes or preferences. As explained by Abelson (1995: 28), "group polarisation arises when a controversial issue is discussed by a group of individuals

who are like-minded on the issue. Following discussion, the average attitude position of the participants becomes more extreme on the initially preferred side".

More recently, the same concept has gained renewed attention in the studies of group interaction within deliberative settings. As extensively argued by Sunstein (2000; 2006; 2009), the occurrence of polarisation represents a problematic element for deliberation theories, since it contradicts the normative ideal that discussion should moderate the differences of opinions among group members, thus leading to more accurate and consensual decisions. This deviation from normative standards of deliberation occurs especially in online interactions on the internet, as a consequence of both anonymity and the possibility of self-selection into 'echo-chambers' with likeminded people. As argued by Sunstein (2009: 82), "in countless domains, the Internet produces a process of spontaneous creation of groups of like-minded, fuelling group polarisation".

These studies make clear the fact that 'moving to extremes' constitutes an essential feature of a polarised distribution of opinions. Yet, these studies on group decision making and group deliberation do not imply an element of 'bimodality', without which polarisation essentially becomes a synonym of radicalization of opinions towards only one pole of an opinion scale. As further explained below, in the studies on public opinion, an element of bimodality is essential for a distribution of opinions to be deemed polarised.

Dispersion and bimodality

Following DiMaggio and colleagues (1996), in the field of public opinion the concept of polarisation relies on two necessary components: an element of *dispersion* and an element of *bimodality*. The first one refers to the spread of opinions along a spectrum, thus implying a widening ideological distance between different positions. According to this principle, "public opinion on an issue can be characterised as polarised to the extent that opinions are diverse,

'far apart' in content, and relatively balanced between ends of the opinion spectrum" (DiMaggio et al., 1996: 694). On the other hand, the element of bimodality refers to the clustering of opinion around two poles. According to this principle, "public opinion is also polarised insofar as people with different positions on an issue cluster into separate camps, with locations between the two modal positions sparsely occupied" (DiMaggio et al., 1996: 694; see also Esteban and Ray, 1994).

Drawing on these two components, polarisation can be defined as a function of *both* dispersion and bimodality, thus implying that, if we take two distributions of opinion on the same linear scale (such as a typical Likert scale), one distribution is deemed more polarised than the other if it is at the same time more dispersed and more bimodal. Foster and Wolfson (2009: 249) provide a similar definition in the field of economic inequality: "We identify two such movements which we call 'increased spread' and 'increased bipolarity.' It is argued that any method of measuring polarisation should be consistent with these basic elements of polarisation".

In search of an index of polarisation

Although the theoretical definition of polarisation provided so far seems straightforward, its practical application proves complicated. The key problem lies in the fact that there is no hierarchical relation between the two parameters of dispersion and bimodality. Thus, in the case of a distribution that is more dispersed but less bimodal than another distribution, it is hard to define which distribution is more polarised. A technical solution could be developing a single index of polarisation, by combining the statistical measures of variance and kurtosis, which, according to the literature (DiMaggio et al., 1996; Baldassarri and Bearman, 2007), respectively capture the dimensions of dispersion and bimodality. However, the indexes proposed so

far do not seem satisfactory[16] or suitable[17] for the field of public opinion. In addition, the parameter of kurtosis suffers from severe limitations especially in the case of small samples (DeCarlo, 1997).

A concrete example concerning the traditionally polarised issue of abortion can help clarify these problems. As a starting point, we can think of a society that is sharply divided into two groups with opposing but at the same time moderate views on the issue of abortion. At Time 1, therefore, both groups agree that in certain cases abortion could be either allowed or forbidden. Imagine that subsequently the issue of abortion becomes salient in the public debate because, for example, a new law is about to be approved. The result can be that at Time 2 a number of individuals shift towards more radical opinions both in favour and against abortion (thus opinions become more dispersed), but at the same time individuals might cluster into several smaller groups (thus the distribution of opinions becomes less bimodal). Unless a single index is developed, we can hardly define whether the distribution of opinions at Time 2 is more or less polarised than the distribution at Time 1.

[16] Baldassarri and Bearman (2007: 801) propose to use the product of variance and kurtosis as an index of polarisation. While appealing in principle, this solution does not produce satisfactory results, due to the significant different values of variance (ranging from 0 to a positive value which constantly increases with the increase of the scale used to measure opinions), compared with the values of kurtosis (ranging from +1 to a negative minimum value of -2 for extreme bimodality).

[17] In the field of income inequality, Foster and Wolfson (2009: 263) develop an index of polarisation closely related to the Gini coefficient. This measure seems suitable for the case of income distribution, but does not seem to fit the case of distribution of opinion.

3.

Voting under uncertainty.

The effect of information in the Scottish independence referendum[18]

3.1. Introduction

Making voting decisions in a referendum often proves far from an easy task. When issues at stake are high and parties align along non-traditional cleavages, voters can find it hard to rely on traditional shortcuts for decision-making, such as party cues. As recent investigations on campaign effects in referendums suggest (Hobolt, 2009; Kriesi, 2012; de Vreese, 2007), in these contexts it is crucial to provide voters with convincing evidence in favour or against a ballot proposal, especially when a relevant share of the electorate is still undecided. However, the extent to which such evidence can actually influence voting decisions remains largely un-explored.

[18] A slightly modified version of this chapter has been published in the *Journal of Elections, Public Opinion and Parties* (Morisi, 2016).

This chapter contributes to our understanding of how information affects voting behaviour in direct democratic contexts, by focusing on the 2014 Scottish independence referendum. This referendum represents a rare example of a single-issue campaign on one of the most fundamental political questions of all – to which country shall we belong? The result of the consultation on September 18 (55.3 percent of 'No' to independence on a turnout of 84.6 percent of eligible voters) confirmed how salient and polarising the issue of independence is for the Scottish electorate. At the same time, during the last months of the campaign, opinion polls indicated a fluctuation in public opinion and the presence of a noteworthy share of undecided voters. To what extent did the arguments from both sides of the campaign influence the outcome of the referendum? How did citizens react to issue-based evidence when their voting decisions could radically change the future of their country?

To explore these questions, I will rely on the same experimental design presented in Chapter 2, with the main difference that the outcome of interest will be participants' self-reported voting intentions in the Scottish independence referendum. Thus, pre-reading voting preferences as reported in the control group will be compared with after-reading voting preferences as reported in the treatment groups, with the aim to identify whether and how provision of information influenced the main outcome of the referendum. Although attitudes towards independence[19] and voting intentions among those who had already decided how to vote strongly correlate (Cronbach's alpha = 0.91)[20], information can still have a distinct effect on voting preferences especially by translating undecided voters' attitudes into concrete vote choices. As the analysis in this chapter demonstrates, one of the main channels of campaign arguments'

[19] Attitudes have been measured on a single 11-point scale about participants' agreement on an independent Scotland (see Section 2.3.3). Values have been subsequently rescaled from 0 (minimum level of agreement) to 1 (maximum level of agreement).

[20] For a correlation between voting intentions, decisions levels and attitudes towards independence in the control group, see Figure 3.4 in Appendix A.

influence on the electorate is reduction of indecision[21], in particular when referendum options imply radically different levels of risks and uncertainties. Ultimately, in a close race, convincing the undecided can prove crucial to winning a referendum campaign.

In addition to experimental data, the analysis in this chapter will rely on a post-referendum follow-up survey that differs from the pre-referendum follow-up survey analysed in Chapter 2. Four months after the experiment, in the week immediately following the referendum, the same participants took part in a follow-up survey in which they reported how they had voted. This survey aimed to provide external validity to the experimental findings, by linking the intentions reported in the lab with the actual vote in the referendum. Further analysis of additional datasets – including a sample of opinion polls, the 2014 Scottish Social Attitude survey and the first three waves of the British Election Study internet panel (Fieldhouse et al., 2016) – contribute to strengthening the validity of the experimental findings.

3.2. Theoretical framework and hypotheses

Despite extensive research on media and campaign effects, the issue of whether information can actually influence voting behaviour in a campaign – and especially in a referendum campaign – remains an open question in the literature. This issue acquires particular relevance in the current information environment, in which "effects become increasingly difficult to produce or measure in the aggregate" (Bennett & Iyengar, 2008: 708), because citizens can choose among a wider range of content and media sources (Mutz, 2006a).

Research in the U.S. has historically argued that electoral campaigns are of limited impact. Following seminal studies that revealed how political predispositions (Lazarsfeld, Berelson &

[21] On the uncertainty-reduction effect of information, see also Alvarez (1997) and Alvarez and Brehm (2002).

Gaudet, 1944) and party identification (Campbell et al., 1960) largely determined voting behaviour, scholars have attributed little more than an activating role to campaigns (Bartels, 1993; Finkel, 1993). Consistent with this approach, early research assumed that the possibility for media messages to change public opinion was limited (Klapper, 1960; McGuire, 1986).

Recent studies, however, have argued that this traditional view of campaign and media effects has been "compromised by conceptual, as well as methodological, inadequacies" (Iyengar & Simon, 2000: 150). Although scholars do not deny the role of campaigns in activating and reinforcing voters' predispositions (e.g. Kriesi, 2012: 165), substantial evidence has been provided in favour of a broader range of effects. For example, research has shown that campaigns can set the public's political agenda (Iyengar & Simon, 2000), increase voters' ability to cast an informed vote (Alvarez, 1997), and mobilise voters (Green & Gerber, 2004) especially in the context of internet-based campaigns (Trechsel, 2007; Vaccari, 2008). Experimental studies have identified substantial campaign effects on turnout (Ansolabehere & Iyengar, 1997; Gerber & Green, 2000) and candidate evaluations (Lau & Redlawsk, 2006), while additional research has shown that campaigns are particularly effective in persuading undecided and independent voters (Chaffee & Rimal, 1996; Hillygus & Jackman, 2003).

In the context of referendums, scholars have argued that campaigns acquire a crucial role due to the uncertainties associated with the ballot proposals (LeDuc, 2002) and the weaker role played by political parties in comparison to general elections (De Vreese & Boomgarden, 2007). In particular, research has shown that referendum campaigns can influence voters' competence (Christin, Hug, & Sciarini, 2002; Kriesi, 2005), while other studies have provided evidence that news framing (Schuck & de Vreese, 2009) can have a significant impact on vote choice in direct democratic contexts. As argued by Hobolt (2009: 89), we may expect therefore that campaigns in referendums "matter more than they do in elections", because they reduce

the uncertainty related to ballot proposals by providing voters with the means for making informed decisions.

Building on this background, it can be assumed that provision of information can actually *persuade* voters in a referendum campaign, especially when the share of the undecided in the electorate is not negligible. Thus, a first general hypothesis can be formulated as follows:

HYPOTHESIS 1: *A persuasion effect*: in a referendum campaign, information influences voting preferences mainly by reducing indecision.

In the specific context of this study, this hypothesis implies that significant variation in the distribution of voting intentions should be observed between the treatment groups (exposure to information) and the control group (no information).

3.2.1. Selection versus non-selection

At the micro level, recent studies in political psychology contribute to understanding the conditions under which information can actually influence voting decisions. A widely explored condition refers to the possibility of choosing the evidence, as investigated by studies on selective exposure (Festinger, 1957). Although early research on selective exposure provided mixed results (for a review, see Sears & Freedman, 1967; Stroud, 2011), recent studies indicate that individuals tend to disproportionately select arguments that reinforce pre-existing attitudes especially when political issues are at stake (Redlawsk, 2006; Taber & Lodge, 2006). Yet, an additional strand of experimental research has demonstrated that individuals tend to give disproportionate weight to consonant arguments even when selection is not possible, due to a mechanism of biased assimilation of information (Lord, Ross & Lepper, 1979; Munro & Ditto, 1997). Recent experiments have confirmed that with regard to political topics individuals often

display a disconfirmation bias, since they tend to reject attitude-incongruent evidence also in the absence of selection (Redlawsk, 2002; Rudolph, 2006; Taber, Cann & Kucsova, 2009).

In the context of political decision-making, these studies suggest that on the one hand, the tendency to give disproportionate weight to attitude-reinforcing evidence reduces the possibility for information to change voting intentions but on the other hand, it helps voters make up their mind, especially when they are undecided. By both selecting confirmatory arguments and by considering these arguments as stronger, voters can translate initial attitudes into stable voting decisions. In addition, the fact that voters tend to reject attitude-incongruent arguments indicates that being exposed to this type of evidence should not significantly affect the process of decision-making. Thus, it follows that, in an environment in which arguments from both sides of the campaign are available, if two random groups of voters are asked to read the arguments and make a voting decision it should not make a substantial difference whether they can or cannot choose which arguments to read, since they will both attribute more weight to confirmatory evidence and discount dis-confirmatory evidence. With regard to the context of this study, this assumption implies that subjects' voting intentions should not vary significantly between the two treatment conditions (selection vs. balanced information).

HYPOTHESIS 2: The persuasion effect should occur regardless of the possibility to select different pieces of information, as long as voters have access to a balanced set of arguments.

3.2.2. Economic expectations

In modelling the impact of information on voting decisions in referendums, it is important to consider that Yes and No votes imply radically different choices. As pointed out by studies of decision-making in direct democratic contexts (Bowler & Donovan, 1998; Hobolt, 2005;

Kriesi, 2005), while Yes votes generally lead to the uncertainty of a change, No votes tend to confirm the certainty of the status quo.

This asymmetry between Yes and No votes in terms of risks and uncertainties is particularly relevant when personal economic costs are at stake. In line with the idea that citizens make voting decisions partially on the basis of cost-benefit analysis (Blais & Young, 1999), research has shown that economic evaluations (Clarke & Kornberg, 1994), risk-opportunity frames (Schuck & de Vreese, 2006) and cost-benefit perceptions (Nadeau, Martin & Blais, 1999; Clarke, Kornberg & Stewart, 2004) influence vote choice in referendum campaigns. These findings resonate with the prediction of prospect theory (Kahneman & Tversky, 1979) that individuals are risk-averse when in the domain of gains (i.e. when economic conditions are favourable) and risk-seeking when in the domain of losses (e.g. during periods of crisis). In particular, Quattrone and Tversky (2000: 460) have demonstrated that when voters decide on political candidates and referendum issues, they are likely to opt for the relatively riskless choice 'when the general [economic] conditions are good' (Quattrone & Tversky, 2000: 460).

In the specific context of the Scottish independence referendum, these studies suggest that voters will react differently to the arguments in favour of and against independence, depending on how the risky prospect of a constitutional change in Scotland would affect their personal economic situation. In particular, it can be argued that those who expect future economic gains (independently from the outcome the referendum), will be less likely to support a change of the status quo, while those who do not expect any improvement in their financial situation will be more likely to support such a change.

HYPOTHESIS 3: After exposure to information, subjects with optimistic economic expectations will be more likely to support the status quo (a No vote), while subjects with pessimistic economic expectations will be more likely to support a change of the status quo (a Yes vote).

3.3. Design

The results presented in this chapter draw on the same experimental study described in Section 2.3 of Chapter 2 (for the instructions, the information stimuli and the main questions presented in the experiment, see Appendix B), in addition to a post-referendum follow-up survey conducted with the same pool of participants. The main difference concerns the outcome of interest, since in this chapter the focus is on voting intentions instead of attitudes. After reading a set of arguments either in the selection condition (TG1) or in the balanced information (TG2) conditions, the participants assigned to the treatment groups reported their voting intentions in the Scottish independence referendum[22]. Those who had been assigned to the control group (CG) simply reported their voting intentions without being presented with any texts in advance. Voting intentions in the control group, therefore, function as a baseline against which to measure the eventual variation in after-reading voting intentions as reported in the treatment groups (for the advantages of this between-subject design versus within-subject designs, see Chapter 2, Section 2.3).

3.3.1. Post-referendum follow-up survey

Around four months after the experiment, in the week following the referendum, all the participants were contacted again to take part in an online follow-up survey. Participation in the survey was voluntary and included a question on the actual vote in the referendum. All the answers in the survey were matched with the responses in the experiment, thus allowing identification of changes at both aggregate and individual levels. Sixty per cent of the subjects

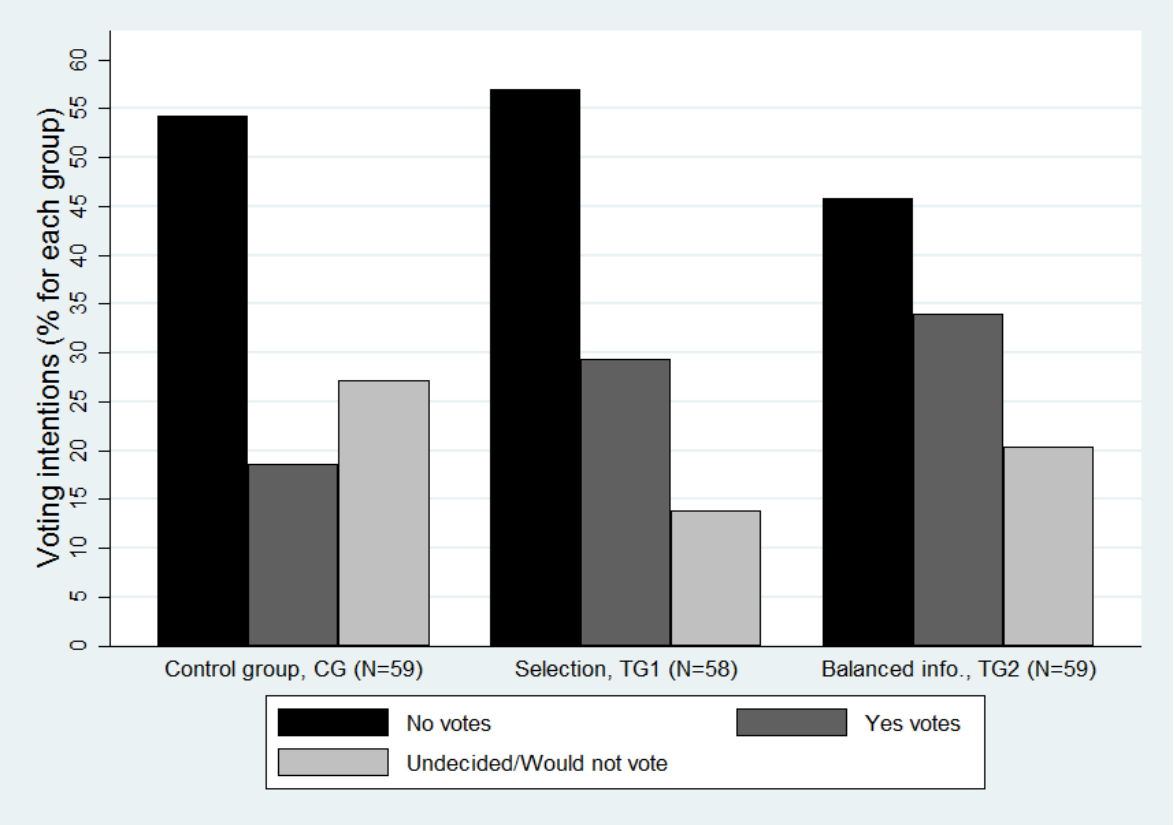
[22] The question was worded as follows: "If the referendum were hold tomorrow, how would you vote in response to the question 'Should Scotland be an independent country?'". Possible answers included the options 'Yes', 'No', 'Undecided', or 'Would not vote'.

participated in the survey with a substantially equal distribution across the three groups. Notwithstanding the self-selection of the participants, a comparison between those who participated in the survey and those who did not participate reveals that these two groups did not significantly differ across multiple dimensions at the time of the experiment, including their preferences for a Yes or No vote.

3.4. Results

In the first step of the analysis, I tested whether voting intentions significantly varied between groups. At a first glance, data in Figure 3.1 reveal that in all conditions the majority of the participants rejected the prospect of an independent Scotland. However, the share of both voting preferences and undecided voters significantly differed across groups.

Figure 3.1. Voting intentions by groups



Note. Control group (no information) and treatment groups (exposure to information). For statistical tests, see Table 3.3 in Appendix A

Firstly, data in Figure 3.1 show that provision of information reduced indecision in both treatment conditions, and especially when the participants were able to select the texts (TG1). In this case, the percentage of those who were undecided or not willing to vote significantly decreased by around half compared to the control group. Although in line with common sense, it is worth underlining that such a reduction of indecision occurred as a consequence of reading a set of texts for around just 10-15 minutes.

Secondly, while the distribution of No votes did not change significantly across groups, larger variation occurred with regard to Yes votes. In this case, the support for independence increased in both treatment groups, and particularly in the condition of balanced information (TG2), in which the share of Yes votes almost doubled compared to the control condition. A one-sided Fisher's exact test confirms that this variation is statistically significant at the 0.05 level (for statistical tests, see Table 3.3 in Appendix A). Reading a balanced set of arguments from both sides of the campaign, therefore, persuaded a large share of voters to support independence. With regard to the second treatment group, this result confirms the first hypothesis of a persuasion effect of information.

Thirdly, when the two treatment conditions are compared, no significant variation occurs in the distribution of voting intentions. This result supports the assumption that the impact of information on voting intentions should not be significantly affected by the possibility to select, as long as voters are exposed to a balanced set of arguments, thus partially confirming the second hypothesis.

3.4.1. Estimates of Yes votes

In the second step of the analysis, I tested the robustness of the main effect of the treatment on the likelihood to vote Yes by using multinomial logistic regression models, in line with previous analysis (Hobolt, 2009: 123). These models prove particularly suitable to test the compound effect of information on both voting preferences (i.e. Yes and No votes) and indecision.

As a preliminary step, I ran different models including the two separate treatment groups, in order to test whether significant variation occurred in the voting intentions of the participants assigned to either TG1 or TG2. This analysis revealed not only that voting intentions did not significantly differ between the two treatment conditions, but also that, after introducing several control variables in the model, the effect of information on voting intentions was extremely similar in both treatment groups compared to the control condition (see Table 3.5 in Appendix A). This result, therefore, confirms the assumption of Hypothesis 2 that a persuasion effect should occur regardless of the possibility to select different pieces of information, as long as voters are exposed to a balanced set of arguments.

Following this preliminary analysis, the two treatment conditions have been combined in a single group for statistical purposes. Table 3.1 reports the results of different multinomial logistic regressions,[23] in which the variable 'information' corresponds to being assigned to the treatment condition.

[23] Multinomial probit models produced results very similar to those presented in Table 3.1. Hausman tests and Small-Hsiao tests confirmed that the multinomial logit analyses did not violate the IIA (independence of irrelevant alternatives) assumption. Due to space limitation, the comparison between No and Undecided is not included in the table (for full results, see Table 3.7 in Appendix A).

Table 3.1. Estimates of Yes votes (multinomial logistic regressions)

	Intentions to vote Yes (experiment, May)						Actual Yes votes (survey, September)			
	(Model 1)		(Model 2)		(Model 3)		(Model 4)		(Model 5)	
	Base outcomes:		*Base outcomes:*		*Base outcomes:*		*Base outcomes:*		*Base outcomes:*	
	No votes	*Undecided*	*No votes*	*Undecided*	*No votes*	*Undecided*	*No votes*	*Did not vote*	*No votes*	*Did not vote*
Information	0.58	0.99**	0.75	1.20**	2.22**	1.38	0.40	0.29	1.69	2.11*
	(0.41)	(0.48)	(0.52)	(0.55)	(0.90)	(0.94)	(0.71)	(0.68)	(1.34)	(1.26)
National identity			0.77**	0.63	0.79*	0.44	0.30	0.83	0.11	0.52
			(0.37)	(0.41)	(0.41)	(0.44)	(0.56)	(0.51)	(0.64)	(0.63)
Party identification			1.08***	0.26	1.29***	0.45	1.08**	0.13	1.22**	0.44
			(0.30)	(0.33)	(0.34)	(0.35)	(0.44)	(0.40)	(0.47)	(0.44)
Trust in Parliament (0-10)			-0.45***	-0.16	-0.45***	-0.06	-0.55***	-0.46***	-0.55***	-0.49***
			(0.11)	(0.11)	(0.12)	(0.12)	(0.17)	(0.15)	(0.18)	(0.17)
Risk attitudes (0-10)			0.23*	0.41***	0.19	0.44***	0.15	0.05	0.11	-0.01
			(0.13)	(0.14)	(0.14)	(0.15)	(0.17)	(0.16)	(0.18)	(0.18)
Economy will get better					1.19	-0.22			1.99	2.98**
					(0.99)	(1.03)			(1.44)	(1.43)
Info*Economy will get better					-2.48**	-0.42			-2.46	-3.79**
					(1.18)	(1.22)			(1.69)	(1.65)
Constant	-1.07	-0.37	-0.37	-2.23**	-0.91	-2.63**	0.99	0.96	0.01	-0.10
	(0.35)	(0.39)	(1.00)	(1.00)	(1.21)	(1.22)	(1.33)	(1.26)	(1.72)	(1.65)
McFadden's R^2	.012		.225		.256		.198		.213	
N	176		164		156		98		94	

Note: Log odds (with standard errors in parentheses) for Yes votes against No votes and either undecided (experiment) or non-voters (survey). 'Information': combined treatment groups against control group (reference category). Identity: British / Equally British and Scottish, no UK identity / Scottish. Party identification: pro-union party / no party identification / pro-independence party. Trust in Westminster: from 0 (no trust) to 10 (a great deal of trust). Risk attitudes: from 0 (really dislike taking risks) to 10 (really like taking risks). ***p<0.01, **p<0.05, *p<0.1, two-tailed

The first model confirms that the participants exposed to information were more likely to vote Yes rather than being undecided, compared to a control condition of no information. This finding still holds in Model 2 after controlling for subjects' national identity and the key elements of party identification and trust in the Westminster Parliament.[24] The fact that subjects' self-reported risk attitudes are also correlated with the likelihood to vote Yes provides further support to the idea that choosing independence represents a riskier choice than remaining in the United Kingdom, as discussed below. Models 1 and 2, therefore, confirm Hypothesis 1, by showing that reading a mixed set of arguments significantly increased the support for independence, after controlling for the key factors of national identity, party identification and trust in the British Parliament. On the other hand, the likelihood to vote No did not change significantly in the treatment conditions compared to the control group.

Model 3 introduces an interaction between personal economic expectations and the treatment condition. Economic expectations have been measured with the standard question from the British Election Study 'How do you think the financial situation of your household will change over the next 12 months?'[25] After splitting the participants in two groups, preliminary analysis reveals that the likelihood to vote Yes increased only among those who did not have optimistic economic expectations (see Table 3.4 in Appendix A). Results from multinomial logistic regressions in Model 3 confirm this pattern, by showing that this group of voters was

[24] Previous studies have identified party identification and trust in the government as crucial predictors of vote choice in referendums (see for example Franklin, van der Eijk & Marsh, 1995; Hobolt, 2009; Kriesi, 2005; de Vreese, 2007).

[25] This question has been chosen because it does not 'interfere' with the treatment, since personal economic expectations are arguably not related to participants' expectations about the future economic situation of Scotland. However, if participants are divided according to an alternative question on the future economic expectations for Scotland in case of independence, the results are very similar to those presented in Table 3.1.

more likely to vote Yes (and less likely to vote No) after reading the texts. However, the negative interaction coefficient indicates that, after exposure to information, those with optimistic economic expectations were significantly less likely to vote Yes (and more likely to vote No), compared to those with more negative expectations[26]. Further analysis with average marginal effects based on Models 3 and 5 contributes to better understanding this interaction.

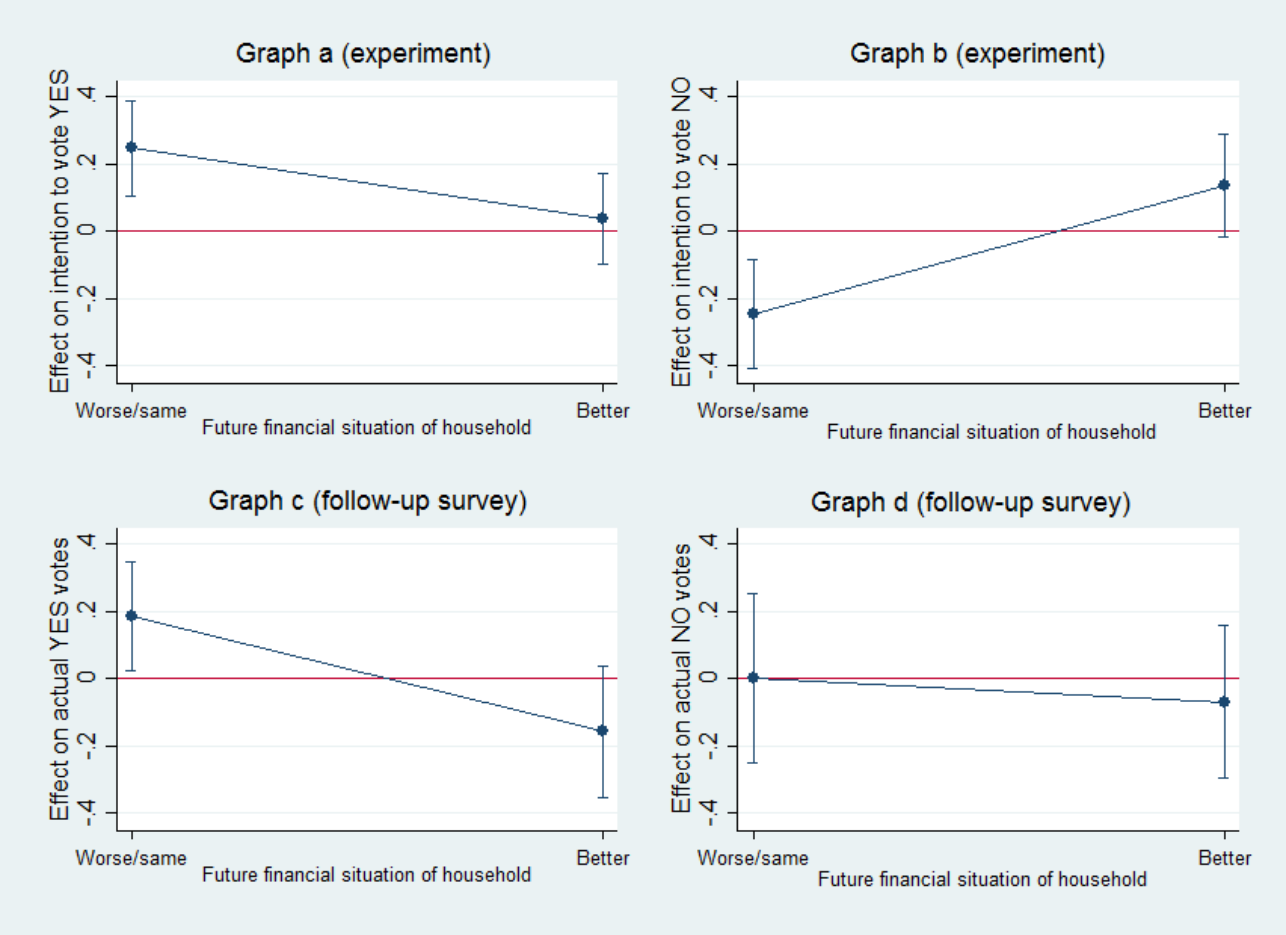
As illustrated in Figure 3.2, provision of information had a positive and significant marginal effect on the likelihood to vote Yes only among those who did not expect any improvement in their future financial situation. This effect concerned not only the likelihood to vote Yes, as recorded in the experiment (Graph a), but also the actual share of Yes votes in the referendum (Graph c). On the contrary, the support for independence did not increase among those with optimistic economic expectations. The trend in Graph b suggests that these voters might have become even more likely to vote No at the time of the experiment, although this effect is not statistically significant[27]. These findings, therefore, provide partial support to Hypothesis 3 and confirm that economic expectations crucially moderate the effect of information on voting preferences. Both previous analyses of cost-and-benefit calculations in voting decisions and prospect theory contribute to explaining these results. Assuming that a 'Yes for a change' is riskier than a 'No for the status quo', it follows that voters will be less likely to choose the riskier option when they expect future economic gains (independently from the

[26] To test the robustness of economic perceptions as a moderating factor against other possible individual moderators, in Table 3.8 in Appendix A I introduced in regression models an interaction between information and risk attitudes. Results from these models are similar to those presented in Table 3.1.

[27] When an interaction between risk attitudes and information is introduced in the models, the findings are very similar to those presented in Figure 3.2. Results from these models show that in both groups, support for independence increased among those with non-optimistic economic expectations. Among those with optimistic economic expectations, on the contrary, information increased the likelihood to vote No within Treatment Group 1 and when both groups are combined. The results from this analysis are presented in Figure 3.5 in Appendix A.

outcome the referendum), compared to a situation in which no economic gains or even losses are expected in the future.

Figure 3.2. Average marginal effects of information on Yes and No votes by personal economic expectations



Note. Graph a: intentions to vote Yes, experiment. Graph b: intentions to vote No, experiment. Graph c: actual Yes votes, follow-up survey. Graph d: and actual No votes, follow-up survey. Calculations based on Model 3 and Model 5 in Table 3.1 with 90% confidence intervals.

3.4.2. External validity

In the last step of the analysis, I run the same logistic models with the actual vote in the referendum as the dependent variable, using the data collected from the post-referendum follow-up survey. As the analysis of marginal effects based on Model 5 has already indicated, the interaction between provision of information and economic expectations contributed to estimating not only voting intentions in the experiment, but also actual Yes votes in the referendum.

Further analysis of survey data confirms that self-reported voting intentions in the experiment proved a reliable proxy for the actual vote, since only 5 percent of those who turned out in the referendum changed their mind – i.e. they voted Yes or No contrary to their previous intentions. Secondly, data show that the percentage of Yes votes increased in comparison to earlier intentions not only at the sample level, but also within each group. As reported in Table 3.2, the support for independence increased by 6.7 percentage points in the referendum compared to previous voting intentions. This increase was determined by a) a larger share of pro-independence supporters who either confirmed their voting intentions or went to the polls compared to pro-union supporters, and b) an almost equal split between Yes and No votes among those who were undecided at the time of the experiment.

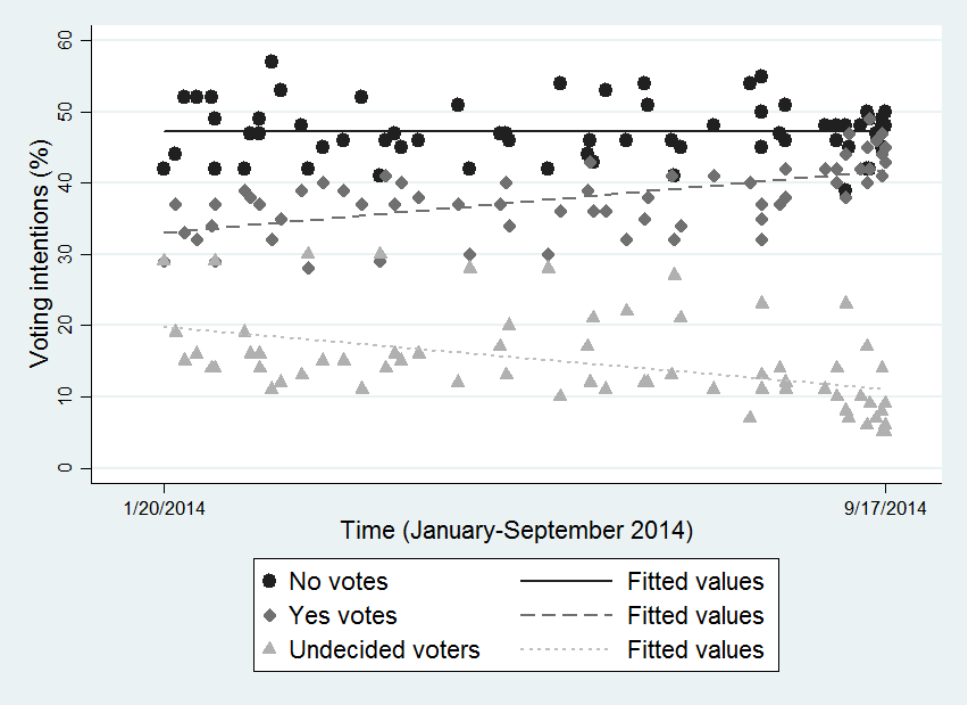
Table 3.2. Voting intentions in the experiment (May) and actual votes (September) by groups

	All participants		CG		TG1		TG2	
	Voting intention	Actual vote	Voting intention	Actual vote	Voting intention	Actual vote	Voting intention	Actual vote
No	66.7	60.0	77.8	72.7	60.0	47.1	63.0	57.7
Yes	33.3	40.0	22.2	27.3	40.0	52.9	37.0	42.3
Total	100	100	100	100	100	100	100	100
(N)	(84)	(65)	(27)	(22)	(30)	(17)	(27)	(26)

Note: Data only for the subjects who participated in both the experiment and the post-referendum follow-up survey (undecided and non-voters excluded).

The analysis of the survey, therefore, provides further external validity to the experimental findings, by showing that the variation in voting intentions recorded in the lab occurred also four months later in the actual voting behaviour of the participants. This effect mirrors a more general trend of increased support for independence that took place in the electorate during the final months of the campaign, as confirmed by a meta-analysis of the opinion polls in Figure 3.3.

Figure 3.3. Vote trend from January to September 2014 (sample of opinion polls)



Note: Data from 66 opinion polls conducted by six polling companies: ICM, IPSOS-MORI, Panelbase, Survation, TNS-BMRB, and YouGov. Data collected from the website whatscotlandthinks.org. N=198, 3 observations for each opinion poll.

3.4.3. Why an effect only on Yes votes?

What still needs to be explained is the reason why a significant variation occurred only on the pro-independence side. A general interpretation relies on the effect of information on reduction of indecision and the above-mentioned asymmetry between Yes and No votes. It can be argued that when the referendum day is still distant in time, a larger share of potential supporters of the 'change option' lies in the group of undecided voters compared to the group of decided voters, since deciding to modify the status quo requires longer consideration due to the risks and uncertainties involved in this option.

This assumption finds indirect confirmation in two additional sets of findings. Firstly, when subjects in the control group are divided according to their level of decision about how to vote[28], data show that the subgroup of the most undecided included a higher share of voters leaning Yes.

[28] Recall that at the beginning of the experiment all the participants replied to a general question on their level of decision about how to vote (see Section 2.3.1; for the formulation of the question, see Appendix B).

In addition, if we consider an additional attitude question – i.e. an 11-point scale about participants' agreement on whether Scotland should have become independent (see Section 2.3.3) – data show that in the control group the support for independence was around 2 points higher among the undecided compared to those who had already decided. A t-test confirms that this difference is significant at the 0.05 level[29]. Secondly, data from the follow-up survey confirm that an increase in actual Yes votes took place especially in the group that was mostly undecided at the time of the experiment (see Table 3.6 in Appendix A). In sum, if information is mostly beneficial for those who have not yet made up their mind, and if a larger share of leaning Yes voters lie within this group, it follows that information leads to an increase of Yes votes mainly through convincing the undecided. In this sense, the treatment effect can be interpreted as persuasion through reduction of indecision.

While it is not possible to test this proposition with precision using extant opinion data, two nationally representative surveys can be seen to provide at least partial support for this assertion. Firstly, data from the 2014 Scottish Social Attitude (SSA) survey reveal a significant correlation between search for online information and support for independence, meaning that the more frequently voters looked for online news, the more likely they were to vote Yes in the period May-August 2014 (see Table 3.9 in Appendix A). Secondly, data from the 2014 British Election Study (BES) panel indicate not only that those who were undecided in February-March 2014 were more likely to vote Yes in the referendum in September, but also that reading a newspaper[30] had a stronger effect on the probability to vote Yes among the undecided compared to the decided voters (see Table 3.10 in Appendix A).

[29] For a correlation between voting intentions, decisions levels and attitudes towards independence in the control group, see Figure 3.4 in Appendix A.

[30] BES data do not include questions on respondents' media use during the first three waves, thus 'reading a newspaper' proves the only available proxy for measuring exposure to information.

3.4.4. Alternative explanations

Lastly, two alternative explanations of the findings can be advanced. The first one concerns the possibility that pro-independence arguments were simply more convincing than the opposite ones, thus leading to an increase only on the Yes side. Although no 'objective' proof can be provided to dismiss this claim, an analysis of subjects' self-reported evaluation of the strength of the arguments rules out this explanation, since the participants actually evaluated the arguments against independence as slightly *more* convincing than the opposite ones.[31]

A second interpretation refers to the idea that the arguments in favour of independence might have had a stronger impact because they were less known than the opposite ones. An indirect test of this assumption can be conducted by analysing the individual responses to the question 'Have you heard this argument before?' which was presented at the end of each text. When selection of the texts was not possible (TG2),[32] data reveal that the difference in subjects' prior knowledge of pro and con arguments was not statistically significant. Based on this analysis, therefore, the treatment effect cannot be explained simply as the effect of a 'knowledge-gap'.

3.5. Conclusions

The study in this chapter aimed to test the causal effect of information on voting behaviour in the campaign for the 2014 Scottish independence referendum. Findings based on a lab-experiment show that reading a mixed set of arguments significantly influenced voting preferences by increasing the support for independence, after controlling for the key elements of national

[31] The participants evaluated the strength of the arguments by replying to a Likert scale after reading each text.

[32] The possibility to select the texts in TG1 does not allow a 'clean' test on the knowledge-gap to be conducted.

identity, party identification, and trust in the British Parliament. This effect was channelled mainly through reduction of indecision and occurred regardless of the possibility to select the information material. Data from a follow-up survey confirm that the trend identified in the lab found further confirmation in the increase of actual Yes votes in the referendum.

Furthermore, findings reveal that personal economic expectations proved a relevant moderator of the effect of information on vote, since the support for independence significantly increased only among those who did not expect future economic gains. These results confirm that cost-benefit perceptions can play an important role especially when voters have to choose between the uncertainty of a Yes for a change and the relative certainty of a No for the status quo. Due to this asymmetrical structure of vote choice, and in line with prospect theory, it seems reasonable to expect voters to respond differently to information, depending on whether 'risky' voting decisions are made either in a domain of 'gains' or 'losses'. In light of these findings, further scholarly attention should be dedicated to investigate the influence of risk-based calculations and economic perceptions on voting decisions not only in referendum contexts, but also in all the electoral contexts in which a 'safer' incumbent candidate competes with a 'riskier' outsider.

Appendix A

Table 3.3. Voting intentions by groups (%, all participants)

	Control group (CG)	Selection of information (TG1)	*Difference |TG1 – CG|*	Balanced information (TG2)	*Difference |TG2 – CG|*	*Difference |TG2 – TG1|*
No	54.2	56.9	*2.7*	45.8	*8.4*	*11.1*
Yes	18.6	29.3	*10.7*	33.9	*15.3***	*4.6*
Undecided / Wouldn't vote	27.1	13.8	*13.3**	20.3	*6.8*	*6.5*
Total	100	100		100		
(N)	(59)	(58)		(59)		

Note: P-values for one-sided Fisher's exact test on the differences between pairs of groups.
* = p<0.1, **= p<0.05, ***= p<0.01

Table 3.4. Voting intentions by groups and personal economic expectations (%, all participants)

	Control group (CG)	Selection of information (TG1)	*Difference |TG1 – CG|*	Balanced information (TG2)	*Difference |TG2 – CG|*	*Difference |TG2 – TG1|*
Personal financial situation will get better						
No	51.5	78.3	*26.8***	*50.0*	*1.5*	*28.3***
Yes	21.2	13.0	*8.2*	*25.0*	*3.8*	*12.0*
Undecided / Wouldn't vote	27.3	8.7	*18.6**	*25.0*	*2.3*	*16.3*
Total	100	100		100		
(N)	33	23		28		
Personal financial situation will get worse/stay the same						
No	65.2	43.8	*21.4**	44.4	*20.8*	*0.6*
Yes	13.0	40.6	*27.6***	40.7	*27.7***	*0.1*
Undecided / Wouldn't vote	21.7	15.6	*6.1*	14.8	*6.9*	*0.8*
Total	100	100		100		
(N)	23	32		27		

Note: 'Don't know' answers to the question on personal financial situation excluded. P-values for one-sided Fisher's exact test on the differences between pairs of groups. * = p<0.1, **= p<0.05, ***= p<0.01

Table 3.5. Estimates of Yes votes (multinomial logistic regressions)

	Intentions to vote Yes (experiment, May)					
	(Model 1)		(Model 2)		(Model 3)	
	Base outcomes:		*Base outcomes:*		*Base outcomes:*	
	No votes	*Undecided*	*No votes*	*Undecided*	*No votes*	*Undecided*
Information	0.40	1.13*	0.67	1.54**	2.32**	1.66
(selection, TG1)	(0.46)	(0.58)	(0.59)	(0.68)	(0.97)	(1.03)
Information	0.77*	0.89*	0.87	0.92	2.07**	1.10
(balanced, TG2)	(0.46)	(0.54)	(0.58)	(0.62)	(1.00)	(1.07)
Identity (British/Scottish)			0.75*	0.71*	0.70	0.52
			(0.38)	(0.42)	(0.43)	(0.45)
Party identification			1.10***	0.21	1.29***	0.41
			(0.31)	(0.33)	(0.34)	(0.36)
Trust in Parliament			-0.44***	-0.17	-0.46***	-0.07
(0-10)			(0.11)	(0.11)	(1.21)	(0.12)
Risk attitudes			0.23*	0.43***	0.20	0.46***
(0-10)			(0.13)	(0.14)	(0.14)	(0.15)
Economy will get better					1.19	-0.23
					(0.99)	(1.03)
Info (TG1) * Economy will get better					-3.10**	-0.20
					(134)	(1.51)
Info (TG2) * Economy will get better					-1.83	-0.35
					(1.30)	(1.38)
Constant	-1.07***	-0.37	-0.40	-2.32**	-0.93	-2.76**
	(0.35)	(0.39)	(1.00)	(1.02)	(1.22)	(1.24)
McFadden's R^2	.017		.231		.269	
N	176		164		156	

Note: The table reports log odds (with standard errors in parentheses) for Yes votes against two base outcomes: No votes and undecided.

'Information': categorical variable, with value of 0 for control group (reference category), a value of 1 for Treatment Group 1, and a value of 2 for Treatment Group 2. Covariates: identity, 3 categories (British / Equally British and Scottish, no UK identity / Scottish); party identification, 3 categories (pro-union party / no party identification / pro-independence party); trust in Westminster, from 0 (no trust) to 10 (a great deal of trust); risk attitudes, from 0 (really dislike taking risks) to 10 (really like taking risks). ***p<0.01, **p<0.05, *p<0.1

Table 3.6. Voting intentions in the experiment (May) and actual votes (September) by pre-treatment decision levels in the experiment (%)

	Definitely decided		Might change mind		Undecided	
	Voting intention	Actual vote	Voting intention	Actual vote	Voting intention	Actual vote
No	75.7	73.3	64.0	56.3	57.9	44.4
Yes	24.3	26.7	36.0	43.7	47.1	55.6
Total	100	100	100	100	100	100
(N)	(37)	(30)	(25)	(16)	(19)	(18)

Note: Data only for the subjects who participated in both the experiment and the follow-up survey.

Table 3.7. Estimates of votes (multinomial logistic regressions)

	Voting intentions (experiment, May)						**Actual votes** (survey, September)			
	(Model 1) *Base outcome: undecided*		(Model 2) *Base outcome: undecided*		(Model 3) *Base outcome: undecided*		(Model 4) *Base outcome: 'Did not vote'*		(Model 5) *Base outcome: 'Did not vote'*	
	No votes	*Yes votes*	*No votes*	*Yes votes*	*No votes*	*Yes votes*	*No votes*	*Yes votes*	*No votes*	*Yes votes*
Information	0.41	0.99**	0.45	1.20**	-0.84	1.38	-0.11	0.29	0.42	2.11*
	(0.40)	(0.48)	(0.46)	(0.55)	(0.79)	(0.94)	(0.53)	(0.68)	(0.77)	(1.26)
National identity			-0.14	0.63	-0.34	0.44	0.52	0.83	0.41	0.52
			(0.38)	(0.41)	(0.41)	(0.44)	(0.46)	(0.51)	(0.48)	(0.63)
Party identification			-0.82***	0.26	-0.84**	0.45	-0.96**	0.13	-0.78**	0.44
			(0.30)	(0.33)	(0.34)	(0.35)	(0.37)	(0.40)	(0.38)	(0.44)
Trust in Parliament (0-10)			0.29***	-0.16	0.38***	-0.06	0.09	-0.46***	0.06	-0.49***
			(0.11)	(0.11)	(0.12)	(0.12)	(0.14)	(0.15)	(0.14)	(0.17)
Risk attitudes (0-10)			0.18	0.41***	0.24*	0.44***	-0.11	0.05	-0.12	-0.01
			(0.11)	(0.14)	(0.12)	(0.15)	(0.12)	(0.16)	(0.12)	(0.18)
Economy will get better					-1.42*	-0.22			0.98	2.98**
					(0.82)	(1.03)			(0.89)	(1.43)
Info*Economy will get better					2.06*	-0.42			-1.33	-3.79**
					(1.07)	(1.22)			(1.10)	(1.65)
Constant	0.69**	-0.37	-1.86**	-2.23**	-1.72*	-2.63**	-0.03	0.96	-0.11	-0.10
	(0.31)	(0.39)	(0.87)	(1.00)	(1.00)	(1.22)	(1.05)	(1.26)	(1.08)	(1.65)
McFadden's R^2	.012		.225		.256		.198		.213	
N	176		164		156		98		94	

Note: Log odds (with standard errors in parentheses) for Yes and No votes against being either undecided (experiment) or non-voters (survey).

Summary of the variables used in the model. '**Information**': combined treatment groups against control group (reference category). **National identity**: British / Equally British and Scottish, not British nor Scottish / Scottish. **Party identification**: pro-union party / no party identification / pro-independence party. **Trust in Westminster**: from 0 (no trust) to 10 (a great deal of trust). **Risk attitudes**: from 0 (really dislike taking risks) to 10 (really like taking risks).
***p<0.01, **p<0.05, *p<0.1, two-tailed

Table 3.8. Estimates of Yes votes controlling for interactions between information and risk attitudes (multinomial logistic regressions)

	Voting intentions (experiment, May)		**Actual votes** (survey, September)	
	(Model 1) *Base outcome:*		(Model 2) *Base outcome:*	
	No votes	*Undecided*	*No votes*	*Did not vote*
Information (combined treatment groups)	4.11 (2.62)	5.77 (2.66)**	2.56 (3.16)	4.37 (3.18)
Economy will get better	1.02 (1.10)	-1.04 (1.27)	2.11 (1.51)	2.80 (1.48)*
Info*Economy will get better	-2.35 (1.27)*	0.32 (1.42)	-2.62 (1.73)	-3.70 (1.67)**
Risk attitudes	0.45 (0.36)	1.04 (0.38)***	0.22 (0.39)	0.26 (0.39)
Info* Risk attitudes	-0.27 (0.39)	-0.84 (0.42)**	-0.10 (0.45)	-0.37 (0.45)
National identity	0.88 (0.42)**	0.57 (0.44)	0.12 (0.65)	0.62 (0.63)
Party identification	1.30 (0.34)***	0.41 (0.36)	1.24 (0.47)***	0.39 (0.44)
Trust in Parliament (0-10)	-0.47 (0.12)***	-0.04 (0.12)	-0.56 (0.18)***	-0.47 (0.17)***
Constant	-2.52 (2.48)	-5.85 (2.45)**	-0.78 (2.92)	-1.86 (2.92)
McFadden's R^2	.277		.219	
N	156		94	

Note: Log odds (with standard errors in parentheses) for Yes votes against No votes and either undecided (experiment) or non-voters (survey). 'Information': combined treatment groups against control group (reference category). Identity: British / Equally British and Scottish, no UK identity / Scottish. Party identification: pro-union party / no party identification / pro-independence party. Trust in Westminster: from 0 (no trust) to 10 (a great deal of trust). Risk attitudes: from 0 (really dislike taking risks) to 10 (really like taking risks). ***p<0.01, **p<0.05, *p<0.1, two-tailed

Additional datasets

Table 3.9. Scottish Social Attitudes survey 2014, Constitutional Change Dataset
Estimates of intentions to vote Yes (logistic regressions)

	Dependent variable: intentions to vote Yes		
	(Model 1)	(Model 2)	(Model 3)
Search for information	0.13**	0.13**	0.15**
	(0.04)	(0.05)	(0.05)
Age		-0.01*	-0.01
		(0.01)	(0.01)
Female		-0.75***	-0.71***
		(0.13)	(0.14)
National identity		1.39***	1.00***
		(0.13)	(0.13)
Party identification			1.03***
			(0.09)
Trust in British Government			0.23*
			(0.10)
Constant	-1.36***	-0.57¥	-1.33**
	(0.09)	(0.32)	(0.48)
McFadden's R^2	.001	.124	.230
N	1501	1498	1467

Note: The table reports log odds (with standard errors in parentheses) for intentions to vote Yes in the Scottish independence referendum. Data from the Scottish Social Attitudes (SSA) survey 2014, Constitutional Change Dataset (survey funded by the Economic and Social Research Council and the University of Edinburgh). Data collected in the period May-August 2014.

Summary of the variables used in the model. '**Search for information**': responses to the question 'How often, if at all, do you look online at a news or newspaper website?' Values recoded in the following five categories: Never/Less often than once a month (0), Once a month/A couple of times a month (1), Several times a week/At least once a week (2) Every day (3), Several times a day (4). **Age**: mean = 52.2, st. dev. = 17.7. **National identity**: British / Equally British and Scottish, not British nor Scottish / Scottish. **Party identification**: pro-union party / no party identification / pro-independence party. **Trust in the British government**: responses to the question 'Do you trust the British government to place the needs of the nation above party interests?' Answers: Just about always / Most of the time / Only some of the time / Almost never.

***p<0.001, ** p<0.01, *p<0.05, ¥ p<0.1, two-tailed

Table 3.10. British Election Study panel survey. Estimates of actual Yes votes (logistic regressions)

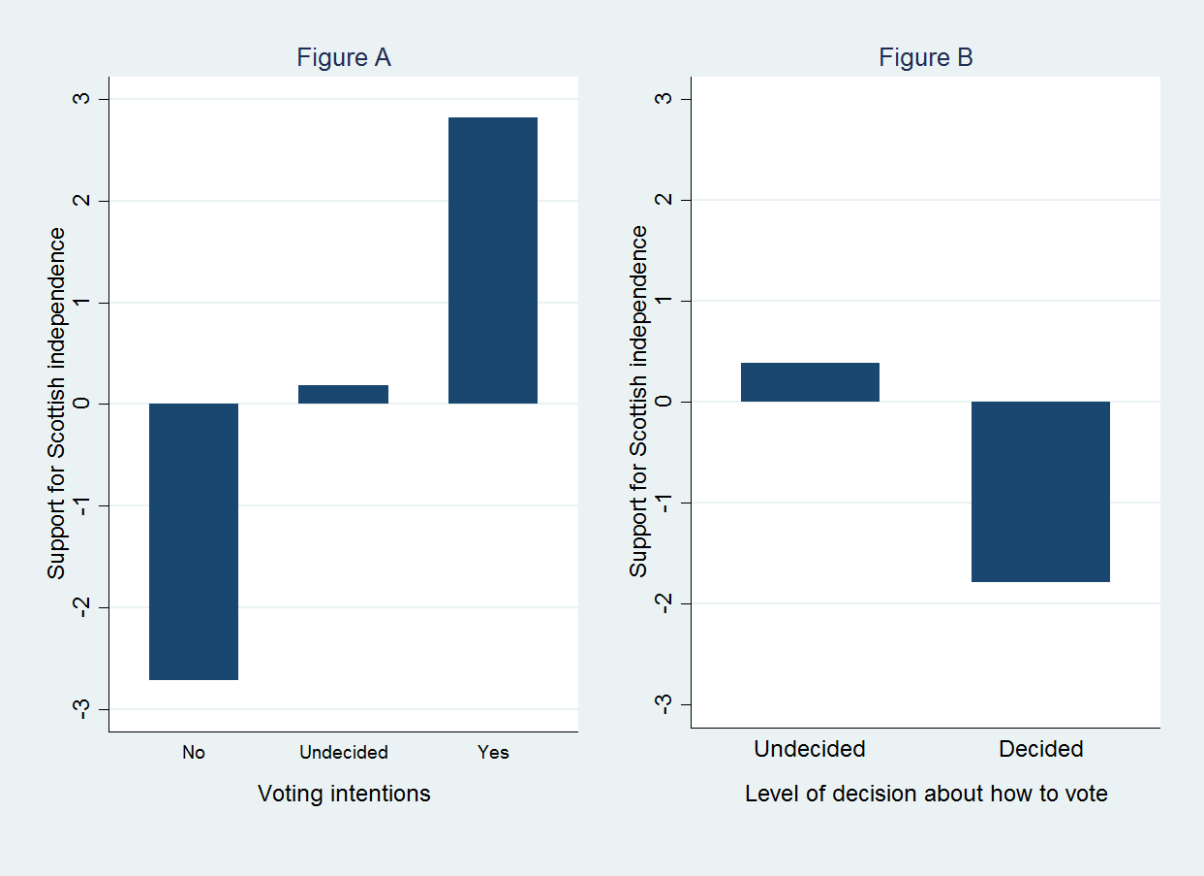
	Dependent variable: Yes votes in the Scottish independence referendum					
				Interaction models		
	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)	(Model 6)
Being undecided	0.87***	.091***	1.10***	0.61**	0.54**	0.80**
	(0.11)	(0.12)	(0.13)	(0.19)	(0.21)	(0.23)
Reading a newspaper				-0.21**	-0.21*	0.04
				(0.08)	(0.08)	(0.10)
Reading newspaper * being undecided				0.37	0.53*	0.51¥
				(0.23)	(0.25)	(0.29)
Age		-0.02***	-0.19***		-0.02***	-0.02***
		(0.01)	(0.01)		(0.01)	(0.01)
Female		-0.36***	-0.27**		-0.37***	-0.27**
		(0.07)	(0.09)		(0.07)	(0.09)
Scottish identity		0.48***	0.35***		0.48***	0.35***
		(0.02)	(0.03)		(0.02)	(0.03)
Party identification			1.44***			1.45***
			(0.05)			(0.05)
Trust in MPs			-0.18***			-0.18***
			(0.03)			(0.03)
Risk attitudes			0.28***			0.28***
			(0.06)			(0.06)
Constant	-0.25***	-1.33***	-0.69*	-0.10	-1.20***	-0.68*
	(0.03)	(0.21)	(0.32)	(0.06)	(0.22)	(0.32)
McFadden's R^2	.012	.120	.328	.014	.121	.330
N	4016	3982	3930	4016	3982	3930

Note: The table reports log odds (with standard errors in parentheses) for Yes votes in the Scottish independence referendum. Data from British Election Study Internet Panel (Fieldhouse, Green, Evans, Schmitt, and van der Eijk, 2014).
All data from Wave 1 (February-March, 2104), except from dependent variable from Wave 3 (post-referendum, September-October, 2014). Data only for respondents living in Scotland at Wave 1.

Summary of the variables used in the model. '**Undecided**': dummy variable with value 1 equal to being undecided about how to vote at the Scottish independence referendum at Wave 1. '**Reading a newspaper**': dummy variable with value 1 equal to reading any newspapers in the UK, value 0 equal to not reading any newspapers. **Age**: mean = 48.7, st. dev. = 16.1. **Scottish identity**: values from 0 (not at all Scottish) to 6 (very strongly Scottish). **Party identification**: pro-union party / no party identification / pro-independence party. **Trust in MPs in general**: from 0 (no trust) to 6 (a great deal of trust). **Risk attitudes** (four categories): Very unwilling to take risks / Somewhat unwilling to take risks / Somewhat willing to take risks / Very willing to take risks.

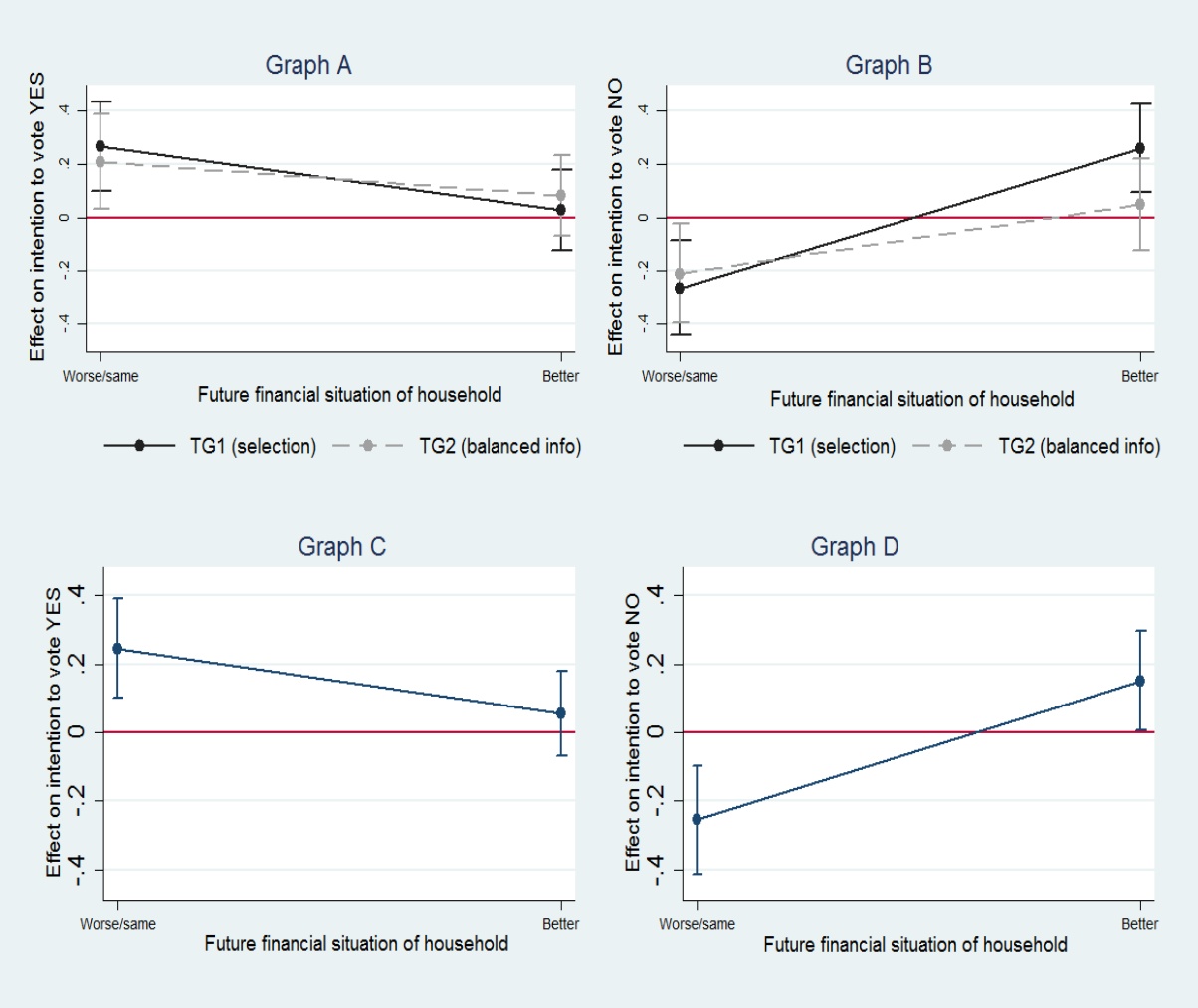
***p<0.001, ** p<0.01, *p<0.05, ¥ p<0.1, two-tailed

Figure 3.4. Support for independence by pre-reading voting intentions and decisions level (control group only)



Note: Y-axis: attitudes towards Scottish independence, 0-10 scale recoded from -5 to 5, with positive values indicating support for independence and vice versa for negative values. Participants only from the control group (N=59), voting intentions and attitudes reported before reading the information material.

Figure 3.5. Average marginal effects of information on Yes and No votes by personal economic expectations (experimental data)



Note. Calculations based on multinomial logistic regressions controlling for the interaction between information and risk attitudes (Table 3.8), experimental data only. Graph A and Graph B: separated treatment groups. Graph C and graph D: combined treatment groups. 90% confidence intervals.

Appendix B. Design of the experiment and instructions

List of the headlines presented in the experiment

Groups	*Arguments pro independence*	*Arguments against independence*
All groups (CG, TG1, TG2)	With a Yes vote Scotland's future will be in Scotland's hands	As part of the UK today Scotland has the best of both worlds
	Energy-rich Scotland would be wealthier as an independent state	Breaking the UK single market puts Scottish business at risk and may cost many jobs
	Under independence Scotland will gain a stronger role in the EU	An independent Scotland would face a mountain of problems to be part of the EU
	Independent Scotland's universities would avoid funding cuts and gain a stronger reputation	Leaving the UK would threaten Scotland's research funding and kill off free tuition fees
CG and TG1 only	Scotland's healthy public finances will make Scots better off independent	Scots worse off? Tax hikes and spending cuts will be cost of independence
	Only independence can guarantee a nuclear-weapons-free Scotland	Defence and security will be diminished by independence
	Independence will mean fairer and more equal Scotland	The only way to keep the pound is staying in the UK
	Young people have most to gain in building a future on independence	A No vote means continuing the success story of Scottish devolution

Main variables used in the experiment

	Dependent variables
Variable	*Question*
Voting intentions	**Q:** If the referendum were hold tomorrow, how would you vote in response to the question 'Should Scotland be an independent country?' **A:** Yes / No / Undecided / Would not vote
Attitude (single scale)	**Q:** How strongly do you agree or disagree with the fact that Scotland should be an independent country? Please reply by using the scale below, where 0 means "Strongly disagree" and 10 means "Strongly agree". **A:** 0 (Strongly disagree) / ... / 10 (Strongly agree) / Don't know
Attitude battery	**Q:** How strongly do you agree or disagree with the following statements? Please reply by using the scale below, where 0 means "Strongly disagree" and 10 means "Strongly agree". **[Statements]** (1) Scotland should become independent even if this resulted in short-term economic losses for Scotland. (2) Scotland should become independent even if this meant losing research funding from UK-based sources and raising tuition fees for Scottish universities (3) Scotland should become independent even if Westminster granted Scotland the maximum level of devolution (4) Scotland should remain part of the UK even if the Westminster government decided to leave the EU (5) Scotland should remain part of the UK even if, as an independent state, it would be wealthier due to its oil reserves and natural resources (6) Scotland should remain part of the UK even if the Tories will win the 2015 election and continue to be in government **A:** 0 (Strongly disagree) / ... / 10 (Strongly agree) / Don't know
	Covariates
Variable	*Question*
Decision about how to vote	**Q:** Which of the following statements best applies to you and how you intend to vote in the referendum on Scottish independence? **A:** I have definitely decided how I will vote and will not change my mind (1) / I have almost decided how I will vote, but I may still change my mind (2) / I have an idea of how I will vote, but I have not yet made a final decision (3) / I have not made any decisions about how I will vote (4)
Personal economic expectations	**Q:** How do you think the financial situation of your household will change over the next 12 months? **A:** Will get a lot worse / will get a little worse / will stay the same / will get a little better / will get a lot better / DK
Trust in Parliament	**Q:** How much do you trust the British Parliament at Westminster? **A:** 0 (no trust) … 10 (a great deal of trust) / DK
Risk attitudes	**Q:** In general, do you dislike taking risks, or do you like taking risks? **A:** 0 (really dislike taking risks) … 10 (really like taking risks) / DK

Note: Some of the questions have been adapted from the questionnaire used by the British Election Study.

Instructions and texts presented in the experiment

(BLUE Lab, University of Edinburgh, 28 April to 2 May, 2014)

[Welcome screen]
Welcome! Thank you for agreeing to participate in this study. This study will not involve any trick questions, and you will simply need to follow the instructions as they gradually appear on your screen. The answers you provide will be treated confidentially. To move on at the end of each part, just click on Next. Please bear in mind that anytime you click on Next you will not be able to go back and edit your responses. It is important that you do not communicate with each other orally or otherwise, and that you read the instructions carefully. If you have any questions, please raise your hand, otherwise click on Next.

[Instructions]
In this study, we will be asking you about your opinions on Scottish independence. The study includes 5 parts and we will give you instructions for each part as you come to it. The most important thing is for you to relax and take your time. Your main task will be to read a set of texts carefully, and make sure that you understand the arguments put forward in each text. Even if you have already heard some of these arguments, we would ask you to put the same care in the task. You will then be asked to reply to a set of questions concerning your opinions on Scottish independence. There is no right or wrong way to answer these questions — you just need to faithfully express your opinion. Once you are ready to proceed, please click on Next. Remember: after clicking on Next, you will not be able to go back.

[Reading tasks – Treatment groups]

[Reading task – TG1]
Now that you are done with the preliminary questions, we will proceed with the main task of the study. Imagine that the referendum will be held tomorrow and that you now have a final chance to form an opinion on Scottish independence. In order to do so, you can now choose and read eight short texts containing various arguments that have been used in the public debate on Scottish independence. Please bear in mind that there is no fictional information. All the arguments have been gathered from real sources, such as Scottish and British newspapers, online news websites, official statements, policy documents, and academic articles. Remember that we are interested in your opinions: if you already have an opinion on Scottish independence, you can use the texts to double-check your arguments, otherwise you can use them to form one.

[Selection task – TG1 only]
Please choose which text you would like to read from the list of headlines below. Each headline corresponds to a text containing arguments either pro or against independence. After selecting one headline, just click on Next and you will see the corresponding text. You will have to repeat the same task 8 times. Please take your time and read each text carefully. You can spend as much time as you need in reading each text, but remember that after clicking on Next you will not be able to read it again. If you want to take notes, feel free to use the paper and pencil on the table in front of you. These notes will be collected at the end of the study, but will be treated

in a completely anonymous way. The task is finished once you have read all the eight texts. It should take you approximately 20 minutes.

Please select a first headline corresponding to an article you would like to read
- PRO - With a Yes vote Scotland's future will be in Scotland's hands
- PRO - Energy-rich Scotland would be wealthier as an independent state
- PRO - Under independence Scotland will gain a stronger role in the EU
- PRO - Independent Scotland's universities would avoid funding cuts and gain a stronger reputation
- PRO - Scotland's healthy public finances will make Scots better off independent
- PRO - Only independence can guarantee a nuclear-weapons-free Scotland
- PRO - Young people have most to gain in building a future on independence
- CON - As part of the UK today Scotland has the best of both worlds
- CON - Breaking the UK single market puts Scottish business at risk and may cost many jobs
- CON - An independent Scotland would face a mountain of problems to be part of the EU
- CON - Leaving the UK would threaten Scotland's research funding and kill off free tuition fees
- CON - Scots worse off? Tax hikes and spending cuts will be cost of independence
- CON - Defence and security will be diminished by independence
- CON - The only way to keep the pound is staying in the UK
- CON - A No vote means continuing the success story of Scottish devolution
- PRO - Independence will mean fairer and more equal Scotland

If you have selected an headline, click on Next to read the corresponding article. Please remember that after clicking on Next you will not be able to go back and edit your selection.

[Reading task – TG2]
Now that you are done with the preliminary questions, we will proceed with the main task of the study. Imagine that the referendum will be held tomorrow and that you now have a final chance to form an opinion on Scottish independence. In order to do so, we ask you to read 8 short texts. Each text illustrates an argument that has been used in the public debate on Scottish independence. Please bear in mind that there is no fictional information. All the arguments have been gathered from real sources, such as Scottish and British newspapers, online news websites, official statements, policy documents, and academic articles.

[Reading task – TG2 only]
Now you can start reading the texts. Please take your time and read all of them carefully. If you want to take notes, feel free to use the paper and pencil on the table in front of you. These notes will be collected at the end of the study, but will be treated in a completely anonymous way. You can spend as much time as you need in reading each text, but remember that after clicking on Next you will not be able to read it again. The task is finished once you have read all the eight texts. It should take you approximately 20 minutes.

[Information stimuli]

[Text 1]

With a Yes vote Scotland's future will be in Scotland's hands

A Yes vote will guarantee that Scotland's future will be in Scotland's hands. Decisions about Scotland will be taken by the people who care most about it – those who live and work here. This vote is a colossal opportunity given to very few in the course of history. People all over the world, dead and alive, would have loved to achieve independence for their country by doing something as straightforward - and, importantly, as peaceful – as voting in a polling booth. Independence isn't about supporting a specific political party: it's about supporting self-determination and having the right to freely elect the government the majority of Scottish actually want, whatever political color it may have. Independence, therefore, would address a profound democratic deficit in Scotland, by replacing the current Westminster system in which Scottish representatives make up just 9 per cent of the 650 MPs. At its heart independence is about a fundamental choice: the people of Scotland will have the power to build a country that reflects their priorities as a society and their values. It will no longer be possible for governments to pursue policies against the wishes of the Scottish people. Independence will put the people of Scotland in charge of their own destiny.

[Q1_prior knowledge] Have you heard this argument before?

- ❍ Yes
- ❍ No

[Q2_evaluation] How weak or strong do you believe the argument contained in this text is? Please note: we want to know how weak or strong you believe the argument is, not whether you agree or disagree with the argument.

- ❍ (Extremely weak) 0
- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 (5)
- ❍ 6 (6)
- ❍ 7 (7)
- ❍ 8 (8)
- ❍ 9 (9)
- ❍ (Extremely Strong) 10
- ❍ Don't know

[Q3_reading_confirmation] I have read and absorbed the content in this text, and I'm ready to proceed...

- ❍ Yes (click on Next)
- ❍ No (please read the text again)

[Text 2]

Energy-rich Scotland would be wealthier as an independent state

Scotland disposes of the largest oil reserves in the EU as well as huge renewable energy potential. Investment in the oil and gas sector is at a record level of £13.5 billion this year, and planned future investment is estimated at £100 billion. Production is expected to extend beyond the middle of the century. In terms of wholesale value, North Sea reserves could be worth £1.5 trillion – a greater value than the amount extracted to date. With 25% of Europe's total tidal energy potential, 25% of its wind energy potential and 10% of its wave energy potential, Scotland has also a huge potential in renewable energy. This has the power to reindustrialise Scotland, bringing more jobs and greater prosperity. However, under successive Westminster governments this energy wealth has not been invested, instead it has gone straight to the UK Treasury. Independence gives Scotland the opportunity to harness this energy wealth for the people of Scotland. All the evidence demonstrates that an independent Scotland would be one of the wealthiest countries in the world. It would be the 14th wealthiest nation in the developed world by GDP per head of population, four places higher than the UK as a whole.

[Q1_prior knowledge]
[Q2_evaluation]
[Q3_reading_confirmation]

[Text 3]

Under independence Scotland will gain a stronger role in the EU

It is no longer possible, even if it were before, to argue that Scotland is more likely to end up outside the EU if it leaves the UK. By far the bigger threat to Scotland's membership of the EU is if it chooses to remain a part of the UK. The whole UK seems increasingly likely to leave the EU and the EU referendum, planned by the Conservatives before 2017, offers the very real prospect of Scotland being dragged out of the EU against its will. The people of Scotland are generally more outward-looking and pro-European than the electorate in other parts of the UK. Therefore, voters in Scotland who prefer to remain within the EU would be better served to vote Yes to independence. A Yes-vote will also give Scotland the capacity to participate at every level in the EU legislative and policy process. An independent Scottish Government will, for the first time, be able to promote Scottish economic interests directly at the EU level, participate fully in the Europe 2020 growth agenda, and participate on equal terms as all other member states in EU affairs. The only way to guarantee EU-membership and a stronger role for Scotland at the EU level is a Yes vote at the referendum.

[Q1_prior knowledge]
[Q2_evaluation]
[Q3_reading_confirmation]

[Text 4]

Independent Scotland's universities would avoid funding cuts and gain a stronger reputation

Scotland is home to some of the world's oldest and most prestigious universities and research at Scottish universities is among the most highly cited per capita in the world. An independent Scotland will be in a stronger position, as a sovereign nation state, to promote Scottish higher education. A dedicated overseas diplomatic and trade network for example could enhance Scot-

land's visibility on the international stage. With an enhanced international profile, Scottish institutions will be able to attract leading research talents from around the world. Moreover, under independence, Scotland would collect its own taxes and be completely responsible for its own funding arrangements – unlike the present situation which sees annual cuts being imposed by Westminster. With an increasingly anti-EU and anti-immigrant UK government, the principles of Scottish higher education have been under threat. The relentless reduction in public spending, the current pressures to reduce university support in England even more, and the privatisation of universities in England through fees will lead to knock-on reductions in public funding in Scotland. A Yes vote is the only way to avoid these threats, guarantee full control over higher education spending, and strengthen the international profile of Scotland's universities.

[Q1_prior knowledge]
[Q2_evaluation]
[Q3_reading_confirmation]

[Text 5]
As part of the UK today Scotland has the best of both worlds
The world has grown ever closer but ever more complicated. Climate change. Extreme poverty and conflict around the world. Terrorism. Competition from new economic powers like Brazil, India and China. In this age of globalisation, countries in every corner of the world are looking at closer integration - at finding new ways to work together. Scotland, in the United Kingdom, has blazed that trail. They have knitted together the communities of these islands in a way that builds collective strength while preserving different identities. There is a sense of Scotland which is bigger than the parochialism of the nationalists. By combining all the talents so much more can be achieved than could ever be done acting alone. The UK will always be about being part of a social union that reaches across generations and borders. Where one can feel as much a part of the community in Edinburgh, as in East London, or Somerset. Rather than searching for ways to divide people who have stood shoulder to shoulder for hundreds of years throughout history, people across the UK should go united. They are stronger and safer as part of the United Kingdom and they can act as a powerful force for good in the world.

[Q1_prior knowledge]
[Q2_evaluation]
[Q3_reading_confirmation]

[Text 6]
Breaking the UK single market puts Scottish business at risk and may cost many jobs
As it stands, the UK is a true domestic single market with no internal barriers. Splitting this market, by introducing a border of whatever form, will introduce a barrier to the free flow of goods, capital and labour to the detriment of firms, workers and consumers in both states and risks making it more challenging to attract overseas investors. The unified market is viewed as a key driver for businesses in Scottish sectors such as financial services, professional services, energy, food and drink. Just a 1 per cent reduction in exports by Scotland to the rest of the UK would equate to £450 million worth of sales. Indeed, some of Scotland's largest companies have warned that a Yes vote in the independence referendum would guarantee higher costs for business. There is too much uncertainty over a number of factors, including which currency and central bank Scotland would use, the impact of EU membership talks, and the effects of

two diverging markets replacing the UK's single market. Banks and insurers would face pressure to move headquarters to a stronger fiscal state with a more certain regulatory backdrop. It's clear that leaving the UK would put at risk the jobs of thousands of Scots.

[Q1_prior knowledge]
[Q2_evaluation]
[Q3_reading_confirmation]

[Text 7]
An independent Scotland would face a mountain of problems to be part of the EU
A newly independent state, breaking away from an existing EU member, Scotland would have to apply as a new member state - meaning that the accession would have to be approved by ALL the other 28 member states. If even just one country says no, Scotland will not be in. This will be extremely difficult. Some member states may be unwilling to grant opt-outs to an independent Scottish state on measures which they have had to adopt themselves. Others have their own independence movements to consider. Spain, fuelled by a desire to stem Catalonian nationalism in its own territory, could use its veto to prevent permanently a separate Scotland joining. Croatia strictly adheres to the position that all prospective EU members have to undergo a thorough negotiating process. France would even have to hold a referendum to accept the new state. Official EU accession talks with Scotland might not be able to start until the envisaged independence date of 24 March 2016, and with such discussions potentially lasting 18 months or more, it could prolong uncertainty around the economic outlook. Tough negotiations would lie ahead on issues such as the UK's current multi-billion-pound budget opt-out, the Schengen "open borders" area, and agricultural policy.

[Q1_prior knowledge]
[Q2_evaluation]
[Q3_reading_confirmation]

[Text 8]
Leaving the UK would threaten Scotland's research funding and kill off free tuition fees
Scotland has more universities in the world top 200 per head of population than any other country in the planet, but these universities need to be properly funded. Independence threatens the survival of one of Scotland's most keenly defended and popular policies: guaranteeing free university tuition for all Scottish students. At present, English, Welsh and Northern Irish students can be charged to study in Scotland since they come from within the same EU member state – the UK. And thanks to devolution within the UK. But what if the rest of the UK becomes a different EU state, can Scotland keep discriminating against its citizens? Charging tuition fees to students from the rest of the UK in an independent Scotland would break European law against discrimination of member states' citizens. Ending that arrangement would be a disaster. It could cost Scotland £150m extra. What is more, Scotland's scientific research funding could be threatened by a break from the UK. While Scotland's population share is 8.4%, it wins 10.7% of research grant funding. An independent Scotland could lose £210 million each year in research funding from UK based sources, which would seriously hamper the research conducted by Scotland's world class universities.
[Q1_prior knowledge]
[Q2_evaluation]
[Q3_reading_confirmation]

4.

Threatened identities?

The polarising effect of negative campaigning in the 2015 UK elections[33]

4.1. Introduction

Attacking the opponent is a common strategy in election campaigns. When challengers face a gap with the incumbent or opinion polls predict a very close race, candidates and parties often resort to aggressive campaign strategies in order to steer voters away from their rivals. As media commentators in the U.S. have remarked since the late 1990s (see Mattes and Redlawsk, 2014: 26-27), at each election round levels of negativity have increased at unprecedented levels. In line with this trend, academic research has also increasingly focused on the effects of negative strategies in election campaigns, initially with regard to the U.S. (for a review, see

[33] A shorter version of this chapter is currently under review in a peer-reviewed journal.

Lau et al., 1999; Lau et al., 2007) and, more recently, with regard to Europe (Nai and Walter, 2015a).

However, notwithstanding this widespread attention, the evidence on the effects of negative campaigning is still inconclusive. Although recent investigations have shown that this strategy can be beneficial for voters since it provides them with relevant diagnostic information about the candidates (Mattes and Redlawsk, 2014), it is not clear whether attacking the opponent brings sizeable benefits in terms of votes on election day. In addition, the studies to date have dealt mostly with elections for candidates in the U.S., although some recent comparative work has underlined that "negative campaigning is not [only] an American phenomenon" (Nai and Walter, 2015b: 17).

One of the reasons why consistent evidence on the effects of negative campaigning is lacking might depend on the fact that the majority of the studies to date have not been able to disentangle the micro mechanisms that can explain voters' reaction to negativity. In this chapter, I argue that negative campaigning can affect voting behaviour through a mechanism whereby voters' sense of in-group membership is activated. This mechanism partially explains why the same strategy of attack politics can prove both beneficial and detrimental for the same party, depending on the complex interplay between parties and voters' positions on campaign issues. When parties attack each other with regard to cross-cutting issues – such as ethical, gender-related, or socio-economic issues – they might activate voters' sense of 'identification' with these issues and either gain or lose electoral support, depending on the stance taken by the party on these issues.

Consider, for example, the case of two voters A and B that hold the same opinion on the issue of gay rights, and two parties C and D, with party C taking the same stance on gay rights as voters A and B, while party D having a different position. If party C decides to attack party

D on the issue of gay rights, party C might reinforce voters A and B's sense of in-group membership with regard to this specific issue, and ultimately gain electoral support. On the contrary, imagine a scenario in which both voters A and B support party C, but only voter A shares party C's position on gay rights, while voter B's position on the issue is closer to the position of party D. In this case, party C's strategy to attack party D on gay rights might succeed in securing voter A's electoral support, but, at the same time, it might steer voter B closer to party D. This simple example summarises the idea that the strategy of attacking a party in relation to cross-cutting issues can lead to different effects, depending on both party positions and voters' positions on these issues.

The 2015 general elections in the UK provided an ideal case to test whether and how negative campaigning affects support for parties and voting behaviour in a context in which different parties attack each other on several contested issues. Contrary to most of the forecasts, these elections – in which the Conservative party obtained the absolute majority of seats in the Parliament – changed the British political landscape strikingly. One of the major sources of change originated North of Hadrian's Wall: in Scotland, the Labour Party and the Liberal Democrats lost respectively 40 and 10 seats out of a total of 59, to the advantage of the Scottish National Party (SNP), which won all but three seats and became the third strongest party in the UK. In order to prevent this largely predicted defeat, the main Westminster parties adopted an aggressive campaign tactic with the SNP and the related issue of Scottish independence – which constituted the SNP's original *raison d'être* – as the main target. The strategy was pursued by Labour in particular, in line with previous elections for the Scottish Parliament (Johns et al., 2010). Did voters reward the parties sponsoring attack messages or did they instead reduce their support for these parties? How did voters react to negative campaigning on an extremely salient issue – i.e. the issue of Scottish independence – that partially cross-cut traditional party cleavages in the electorate, as the recent referendum on Scottish independence in

2014 (see section 3.1) suggested? These are the questions that I will attempt to answer in this chapter.

Although the literature provides different definitions of negative campaigning (for an overview, see Nai and Walter, 2015b: 11-12), all the definitions refer to one common element, i.e. attacking a political opponent. That is to say, negative campaigning simply refers to "talking about the opponent – the (deficient) nature of his or her programs, accomplishments, qualifications, associates, and so on" (Lau and Pomper, 2001a: 73). In this chapter, I will rely on this 'directional' definition of negative campaigning, which excludes any evaluative dimension, such as when the term 'negative' is used as a synonym of unfair campaigns. As further described in the design section, I will refer specifically to the strategy that was pursued by the main Westminster parties (the Conservatives, Labour and Liberal Democrats) to attack the SNP.

Two independent datasets provide the basis for the empirical analysis. Firstly, I will analyse the data from an original experimental study that I conducted online during the last two weeks of the campaign. The experiment is based on a between-subject comparison, in which the participants assigned to the treatment condition were exposed to attack statements from the main parties competing for the elections. Secondly, I will exploit a specific question on perceived negativity of the campaign that was introduced in the British Election Study (BES) panel survey (Fieldhouse et al., 2015). The analysis of these nationally representative panel data contributes to understanding how negativity affected actual voting in the 2015 general elections. The combination of these studies provides both an empirical and a theoretical contribution to research on negative campaigning, and highlights a novel mechanism through which the negativity of attacking strategies can affect voting behaviour.

4.2. Effects of negative campaigning: a mixed picture

Despite the increased scholarly attention that negative campaigning has received over the last two decades, the effects of this strategy on the electorate are still unclear. As Lau and colleagues bluntly concluded in a meta-analysis of 111 studies that, "there is no consistent evidence in the research literature that negative political campaigning 'works' in achieving the electoral results that attackers desire" (Lau et al., 2007: 1185). This conclusion mirrored the findings from an earlier meta-analysis, in which the authors did not find consistent evidence that negative advertising was beneficial either for the sponsors or for the targets of negative ads (Lau et al., 1999).

Most of the studies on negative campaigning have focused on turnout, after ground-breaking research by Ansolabehere and colleagues revealed that exposure to negative ads could 'demobilise' voters, by reducing their likelihood to vote (Ansolabehere et al., 1994; Ansolabehere and Iyengar, 1995). Subsequent research, however, challenged these findings by showing that negative campaigning could actually stimulate voters' participation (Wattenberg and Brians, 1999; Freedman and Goldstein, 1999; Goldstein and Freedman, 2002), especially among strong partisans (Lau and Pomper, 2001b).

The literature on the consequences of attack politics on vote choice also provides conflicting evidence. While experimental research has shown that exposure to negative ads (Kaid, 1997) and negative messages (Fridkin and Kenney, 2004) increase support for the attacker, other studies have demonstrated that attack advertisements can actually reduce support for their sponsors (Sonner, 1998; Houston et al., 1999). More recently, in two field experiments, Arceneaux and Nickerson (2010) have found that the impact of positive and negative messages on political attitudes does not systematically differ, while an experiment by Min (2004) has shown that candidates do not generally benefit from attacking political adversaries.

Scholars have also pointed out to a series of positive effects of attack strategies that go beyond the impact on turnout and vote choice. Building on Geer's (2006) claim that negativity contributes to the democratic debate by shedding light on candidates' shortcomings, Mattes and Redlawsk argue that "negativity carries valuable information about the candidates, information that voters otherwise would not have received" (2014: 25). Drawing on a combination of surveys, experiments and formal modelling, the authors question the conventional idea that voters disapprove of attack politics, and argue, instead, that voters use negative statements as a diagnostic tool to test candidates' honesty.

Besides these recent investigations, however, the evidence to date does not allow consistent effects of negative campaigning on voting behaviour to be identified. Moreover, our knowledge of these effects remains confined mostly to elections for candidates in the U.S., although evidence indicates that this phenomenon occurs also in elections for parties in several other countries (Curini and Martelli, 2010; Hansen and Pedersen, 2008; Nai and Walter, 2015b; Ridout and Walter, 2015; Sigelman and Shiraev, 2002). As argued by Pattie and colleagues (2011: 335), "reactions to negative campaigning may be very different when the perpetrators and victims are parties rather than people". In the following section, a set of hypotheses will be drawn on the basis of the existing findings on negative campaigning in the UK.

4.3. Voters' reaction to negativity in the UK

Studies of recent past elections provide consistent evidence that campaigns influence turnout and voting behaviour in Britain (Clarke et al., 2004, 2009; Fisher et al., 2011, 2016; Pattie et al., 1995; Whiteley and Seyd, 1994). With regard to campaign tone, research has highlighted a tendency towards increased negativity in the 1997 and the 2001 UK general elections (Hodess et al., 2000; Pipkin and Bartle, 2001), as well as the 2010 general elections in Scotland (Nai and Walter, 2015b: 17). Furthermore, recent studies have shown that in the UK parties tend to

go negative especially when they are losing at the polls (Walter, 2014; Walter et al., 2014). These trends are in line with evidence indicating that candidates with challenger status (Druckman et al., 2009; Lau and Pomper, 2001a) or lagging behind in the polls (Damore, 2002; Sigelman and Buell, 2003) are more likely to adopt attack strategies. In the case of the 2015 UK general elections in Scotland, the main Westminster parties resorted to attack statements mainly as a response to both the 'incumbent' status of the SNP in Scotland[34] and the opinion polls that were predicting a landslide victory for that party.

A few studies provide theoretical expectations about the effect of negativity on voting behaviour in the UK. With regard to the 1997 general elections, research by Sanders and Norris (1998; see also Norris et al. 1999) shows that positive television campaign messages were more effective than negative messages in shaping British voters' political perceptions. In a subsequent study on the 2001 general elections, the authors find not only that negativity was not effective, but also that in some cases "negative campaigning was explicitly counter-productive in the sense that it appears to have actively stimulated sympathy for the target of the attack" (Sanders and Norris, 2005: 525).

Such a 'reverse effect' finds confirmation also in a study by Pattie and colleagues (2011) on the 2007 elections for the Scottish Parliament. In this study, the authors underline that in some cases negativity increases voters' support for the targets of the attacks. In addition, they demonstrate that this campaign strategy can backfire, since "the more negative a party's campaign is perceived to have been, the less likely people are to vote for the party" (Pattie et al., 2011: 342). Research from social psychology provides additional evidence that attack mes-

[34] After the 2011 Scottish Parliament elections, the SNP obtained the absolute majority of seats in the Scottish Parliament.

sages and negative advertisements can have a backlash effect, since they can lead to unfavourable evaluation of the sponsor of the messages (Matthews and Dietz-Uhler, 1998; Roese and Sande, 1993).

Although reverse effects and backlash effects can be interpreted as two sides of the same coin, they do not automatically occur together, especially in multiparty systems. If voters disapprove a party that resorts to attack statements, it does not necessarily follow that they will increase their support for the target of the attacks. On the contrary, they might become either less likely to go to vote in general or more likely to vote for any other party competing for the elections. Thus, in hypothesising the effects of negative campaigning, it is worth keeping these two effects analytically separate. In the context of this study, this leads to the following assumptions:

HYPOTHESIS 1 *A backlash effect*: the strategy of attacking the SNP reduces voters' support for the parties sponsoring the attacks.

HYPOTHESIS 2 *A reverse effect*: the strategy of attacking the SNP increases voters' support for the SNP.

Extant research, however, suggests that negative campaigning can have different effects at both party level and individual level. In the former case, evidence indicates not only that party systems make a difference (Ridout and Walter, 2015), but also that parties are more likely to attack each other if they are ideologically close (Curini and Martelli, 2010; Haynes and Rhine, 1998; Walter, 2014). In the context of the 2015 UK general elections in Scotland, this evidence suggests that Labour should have been more likely not only to attack the SNP (due to the ideological proximity between the parties), but also to suffer from a potential reverse effect of negative campaigning. The assumption is that voters are more likely to support the target of the attacks if this target is ideologically close to the party sponsoring the attacks. Evidence

from Pattie and colleagues (2011: 340) partially confirms this assumption, by showing that in the 2007 Scottish elections "those who thought that Labour had campaigned negatively came to like the SNP more". Thus, if a reverse effect is likely to occur, this effect should concern especially the Labour with regard to the SNP.

HYPOTHESIS 3 *Ideological proximity*: the strategy of attacking the SNP increases voters' support for the SNP, mostly at the expense of the Labour party.

With regard to the individual level, one of the key factors explaining voting behaviour in Scotland concerns national identity feelings. Correlations between Scottish identity and support for the SNP have been documented for the 1997 UK general elections (Brown et al., 1999: 64-65) and for the 2011 Scottish parliament elections (Carman et al., 2014: 40; McCrone and Bechhofer, 2015: 197), as well as for the 1997 Scottish devolution referendum (Pattie et al., 1999) and the 2014 Scottish independence referendum (Bond, 2015). If we assume that such a correlation applied also in the 2015 general elections in Scotland, it can be argued that voters who identify as Scottish would have been more likely to react to attack statements against the SNP, because these attacks pose an indirect threat to their group identity, in line with social identity theory (Tajfel, 1981; Hogg and Abrams, 1988; Capozza and Brown, 2000). Experimental research on individual responses to group identity threats in electoral contexts indicates that, after receiving negative information about their own group, those who identify strongly with the group tend to react defensively and criticize out-group members (Branscombe and Wann, 1994; Crocker et. al., 1987; Matthews and Dietz-Uhler, 1998). Therefore, it can be assumed that those who identify as Scottish will be more likely to react to attack messages against the SNP by both increasing their support for the SNP and reducing support for the parties sponsoring the attacks. In other words, the effects of the treatment should be larger among Scottish participants.

HYPOTHESIS 4 *National identity*: the strategy of attacking the SNP leads to a particular backlash effect and a reverse effect among those who identify as Scottish.

4.4. Design[35]

The analysis relies on two independent sources of data: an original experimental study that was carried out during the last two weeks of the campaign, and a national panel survey conducted by the British Election Study (BES).

4.4.1. Experimental design

The experiment was conducted online and involved 201 participants recruited by BLUE Lab, University of Edinburgh. The pool of subjects included mostly university students (mean age = 25.3, SD = 9.5) who had been living in Scotland already for several years (mean number of years = 14.7, SD = 14.4). As a crucial requirement for participation in the study, all the participants had to be eligible to vote and be resident in Scotland. Around 43 percent described themselves as either Scottish or equally Scottish and British, while 40 percent identified as British, and the rest as neither Scottish nor British. With regard to pre-treatment party identification, 18 percent of the pool reported to be close to the Labour party, 17 percent to the SNP, 15 percent to the Conservative, and 9 percent to the Liberal Democrats. Despite this varied distribution, significant differences occurred in the distribution of the participants by party identification between the control and the treatment group (see Table 4.7 in Appendix A). For this reason, in the analysis that follows, party identification will be introduced as a crucial control in regression models.

[35] For the instructions and the texts presented in the experiment, see Appendix B.

The experiment consisted of a basic between-subject design with two conditions. After replying to a few preliminary questions including party identification and national identity,[36] the participants were randomly assigned to either a control or a treatment condition. In the control condition, they were briefly shown a summary table with the positions of the four main parties – the Conservatives, Labour, Liberal Democrats, and SNP – on five issues on which parties mostly agreed on. This table aimed to introduce the participants in a non-conflictual scenario, by showing that a certain level of agreement existed across parties on some campaign issues. After this step, they read four short texts containing arguments in favour of each of the main parties (see text below). These arguments had been selected from party leaders' statements reported in mainstream media in the months of March and April 2015, and the participants were explicitly instructed that the text derived only from publicly available information. Crucially, these texts did not include any mentions to either political leaders or opposing parties, thus they could be defined as 'advocacy messages' (Sanders and Norris, 2005: 526), since they were making a positive appeal to voters.

The participants assigned to the treatment condition were also presented with a brief table with party positions on five conflictual issues, which aimed to introduce the participants to a conflictual campaign environment. In the following step, the participants were asked to read the same texts presented in the control condition, but with an additional paragraph included in each text. These paragraphs contained actual statements in which party leaders openly attacked the SNP mostly with regard to the issue of Scottish independence, and encouraged voters not to support that party for issue-based reasons. An additional paragraph in which SNP party lead-

[36] Identity was measured with the common 'Moreno' question (Moreno, 1988). For statistical purpose, the scale was recoded in two categories: 'Scottish' (including those who defined themselves as 'Equally Scottish and British'), and 'British'.

ers discouraged voters to support all the other main parties was also included in the text supporting the SNP. All the information materials in the treatment conditions were approximately 200-word long. The following is the text with the statements supporting the Labour party – the part in brackets was shown only in the treatment condition.

Labour: "We are the only anti-austerity party in Scotland"

Scotland will decide the outcome of this election. If Scotland votes Labour, then Britain will have a Labour government and we can start the job of rebuilding our country.

We have a radical plan to transform Scotland, so that working-class families get a fair shot at life. A Labour government will introduce a Mansion Tax on properties worth £2 million so we can fund 1,000 more nurses in Scotland's NHS. And we will call time on exploitative zero hours contracts that cause so much harm particularly to young Scots in work.
If you vote Labour, you're voting for a completely different approach to the management of the economy, for a party that cares about the fact that inequality has grown, that can show through our record that we're committed to proper investment in public services.

[A vote for the SNP is one for austerity, because it makes it more likely that the Tories remain in power, and because the SNP remains wedded to a fiscal approach for Scotland which rejects the pooling and sharing of resources across the United Kingdom. Their ultimate goal remains the same. It's independence. And Labour is not going to put at risk the unity of the United Kingdom in a coalition with the SNP.]

Only Labour can credibly claim to be the anti-austerity party of Scotland. If you vote Labour, you're voting to end austerity in Scotland.

After completing the reading task, the participants in both conditions replied to a final battery of questions, including the dependent variables, i.e. voting intentions and support for parties. The latter variable was measured by asking the participants to rate the 'likeability' of

the four main parties on a standard 11-point scale commonly used by the British Election Study.[37]

4.4.2. Panel survey

Additional data from the British Election Study Internet panel permit tests of the effect of negative campaigning on the actual vote within a representative sample of voters. In the following analysis, I will consider three waves of the panel – Wave 4 (February/March 2015), pre-election Wave 5 (April/May 2015), and post-election Wave 6 (May 2015) – and only the responses from those who were resident in Scotland.[38] The dependent variable corresponds to the actual vote as recalled by respondents in Wave 6.

Wave 5 included the key independent variable, i.e. voters' perception of negative campaigning. The respondents were asked to rate on different 5-point scales to what extent the Conservatives, Labour, Liberal Democrats and the SNP focused in their campaign either on criticising other parties or on putting forward their own policies.[39] This question provides a measure of perceived negativity and permits separation of the effect of each party's campaign tone. In addition, in order to guarantee comparability with the experimental findings, the four scales have been combined in a single additive index, with values rescaled from 0 (minimum level of negativity) to 1 (maximum level of negativity). Although voters rated each party's

[37] The question was worded as follows: 'How much do you like or dislike each of the following parties?'. Answers ranged from 0 (strongly dislike) to 10 (strongly like).

[38] In all the analysis that follows, data have been weighted to ensure that the sample is representative of the general population.

[39] The question was worded as follows: 'In their campaigns political parties can focus on criticising 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 campaign of each of the following parties?' Answers ranged from 1 ('focuses mainly on criticising other parties') to 5 ('focuses mainly on putting forward their own policies and personalities').

campaign differently depending on party identification, this index provides a cumulative measure of perceived negativity of the *general* campaign, which can be reasonably compared with the operationalization of negative campaigning used in the experimental setting.

The other key independent variables introduced in the analysis are party identification and national identity as reported in Wave 4.[40] The latter variable has been measured with two separate 7-point scales of 'Scottishness' and 'Britishness'. In order to facilitate comparability with experimental data, these two scales have been combined in a single index of 'Scottish vs. British' identity, by subtracting the values of the Britishness scale to the Scottishness scale. The final index has been re-coded in a dummy variable with value 0 for those feeling more British than Scottish and value 1 for those feeling either equally Scottish and British or more Scottish than British.

4.5. Results

In the following sections, I will present first the experimental results on support for parties and voting intentions, and secondly the results from panel data on the actual vote.

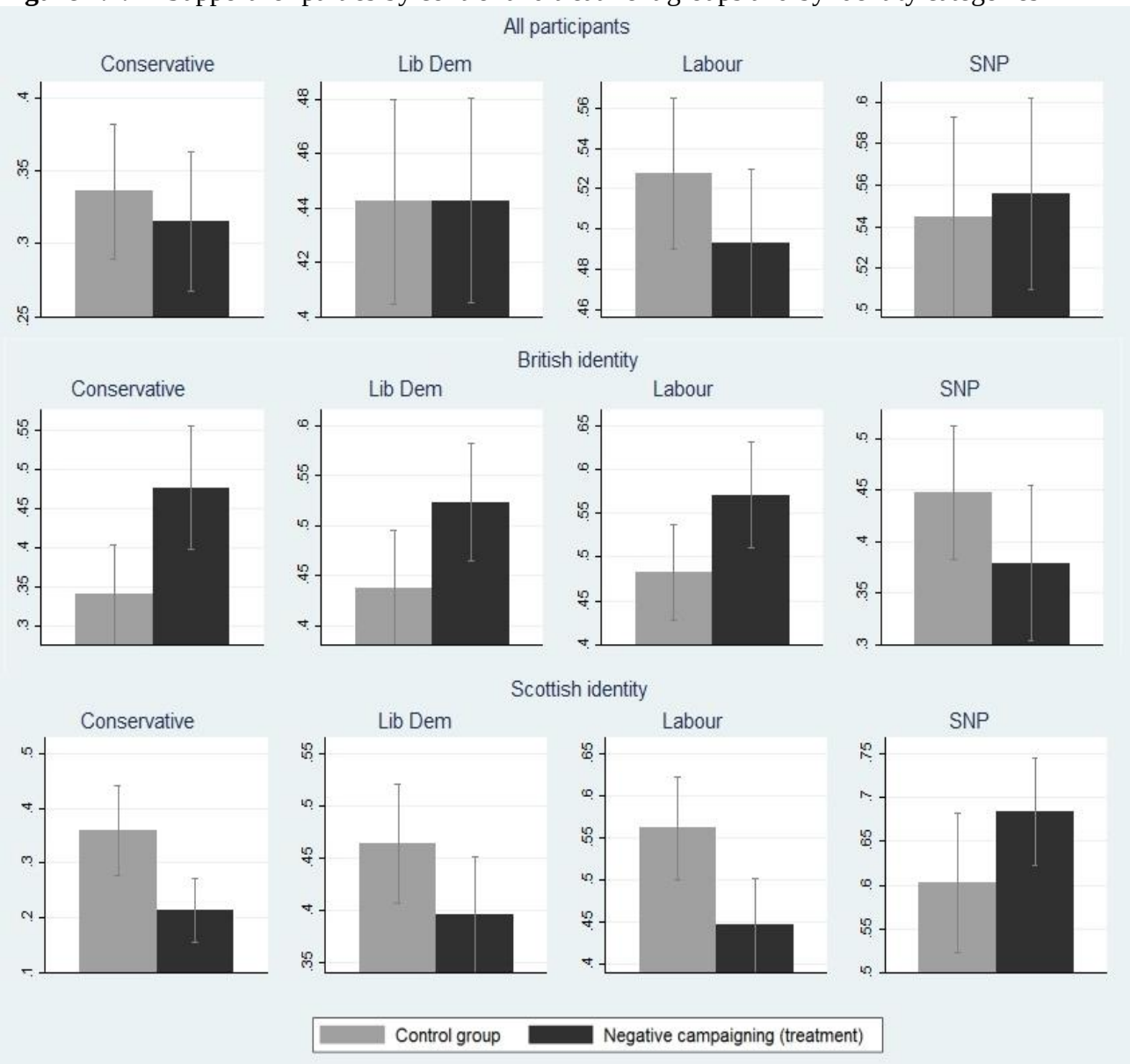
4.5.1. Support for parties

Figure 4.1 presents the distribution of party likeability scores by control and treatment group for the entire pool (first row) and by national identity categories (second and third row). As the bar graphs in the first row highlight, the only sizeable difference between control and treatment group concerns support for the Labour party, which decreased in the negative campaigning condition compared to the control condition. However, none of the differences between mean

[40] The panel did not include measures for party identification and national identity in Wave 5.

values in the first row reach a common level of statistical significance (see t-tests in Table 4.8 in Appendix A).

Figure 4.1. Support for parties by control and treatment groups and by identity categories



Note. Y-axis: party likeability scores measured on an 11-point scale, with values rescaled from 0 (strongly dislike) to 1 (strongly like). **First row:** all participants, N=201. **Second row:** British national identity, N=81. **Third row:** Scottish national identity, N=87. 90% confidence intervals. For t-tests of the differences between mean values, see Table 4.8 in Appendix A.

When respondents are divided by national identity categories, the bar graphs in the second and third row provide a completely different picture. Among the participants who identified as British and not Scottish, negative campaigning increased support for all the main Westminster parties and reduced support for the SNP, in comparison to a control condition of positive campaigning. Although confidence intervals overlap in the graph, two-tailed t-tests on the differences between mean values confirm that the differences between control and treatment group are statistically significant for all the three Westminster parties (see Table 4.8 in Appendix A).

On the other hand, an opposite pattern occurred within the group of those who described themselves as either Scottish or equally British and Scottish. As the bar graphs in the third row clearly illustrate, in this case negative campaigning actually reduced support for all the Westminster parties, and especially for the Conservative and the Labour party (see t-tests in Table 4.8 in Appendix A), while it increased support for the SNP. The results in Figure 4.1, therefore, indicate that national identity actually proved a crucial mediator of treatment effects, since negative campaigning affected support for parties in opposite directions depending on participants' self-reported national identity.

In Table 4.1 I extended the analysis on party likeability scores, by using OLS regressions. In order to control for the imbalances between groups mentioned above, in each Model I introduced pre-treatment party identification as a crucial control variable. The variable 'Negative campaigning' corresponds to a dummy with value 1 for the participants who were assigned to the treatment group.

As expected, in all models party identification is positively correlated with the rating of the corresponding party, meaning that, for example, those who feel close to the Conservative party give a higher rating to that party compared to those who identify with other parties or with no parties. Although negative campaigning is not associated with party likeability scores in Models 1 to 4, when national identity is introduced in Models 5 to 8, significant correlations

occur between assignment to treatment and the rating of the the Conservatives and Labour. As regressions coefficients in Models 5 and 7 indicate, after reading negative statements, those who identified as British gave a significantly higher rating to the the Conservatives and Labour compared to a control condition of advocacy messages. On the other hand, the negative interaction coefficients reveal that negative campaigning significantly reduced support for the the Conservatives and Labour among those who identified as Scottish compared to those who felt only British.

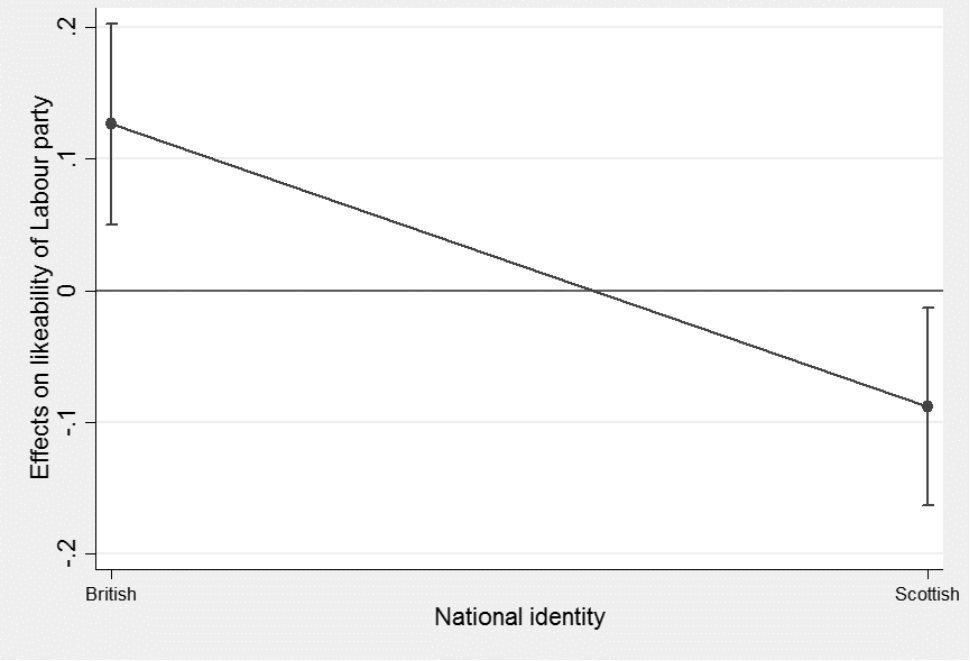
Table 4.1. The effect of negative campaigning on party likeability

	Like/dislike scores							
	(1) Con.	(2) Lib Dem	(3) Labour	(4) SNP	(5) Con.	(6) Lib Dem	(7) Labour	(8) SNP
Negative campaigning	0.01	0.02	0.01	-0.04	0.08*	0.06	0.13***	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.04)	(0.04)	(0.05)
Scottish identity (vs. British)					0.05	0.07	0.12**	0.10*
					(0.05)	(0.04)	(0.05)	(0.05)
Neg. camp. * Scottish id.					-0.13*	-0.08	-0.21***	0.01
					(0.07)	(0.06)	(0.06)	(0.07)
Party ID								
- Conservative	0.47***	0.09**	-0.10**	-0.33***	0.44***	0.06	-0.14***	-0.32***
	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
- Lib Dem	0.15***	0.30***	0.04	-0.22***	0.08	0.28***	0.03	-0.18***
	(0.06)	(0.05)	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)
- Labour	0.07*	0.07*	0.21***	-0.08*	0.01	0.06	0.20***	-0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.05)
- SNP	-0.13***	-0.11***	-0.05	0.27***	-0.17***	-0.16***	-0.07	0.26***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Constant	0.24***	0.40***	0.49***	0.49***	0.26***	0.39***	0.44***	0.53***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)
R2	.426	.226	.191	.415	.463	.276	.267	.463
N	201	200	201	198	168	168	168	166

Note. OLS regressions, experimental data. Dependent variable: party likeability scores measured on an 11-point scale, with values rescaled from 0 (strongly dislike) to 1 (strongly like).
Standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p <0.01.

The interaction coefficient is larger in the case of Labour, thus indicating that attack statements affected support especially for this party. Further analysis with marginal effects presented in Figure 4.2 confirm the pattern already identified in the Figure 4.1. with regard to the Labour party: the strategy of attacking the SNP boosted Labour support among British participants, and, at the same time, reduced Labour support among Scottish participants, compared to a control condition of positive campaigning. With regard to the Labour party, therefore, negative campaigning generated a polarising effect, since exposure to treatment made British and Scottish participants more far apart in their support of the party.

Figure 4.2. Average marginal effects of negative campaigning on likeability of Labour party

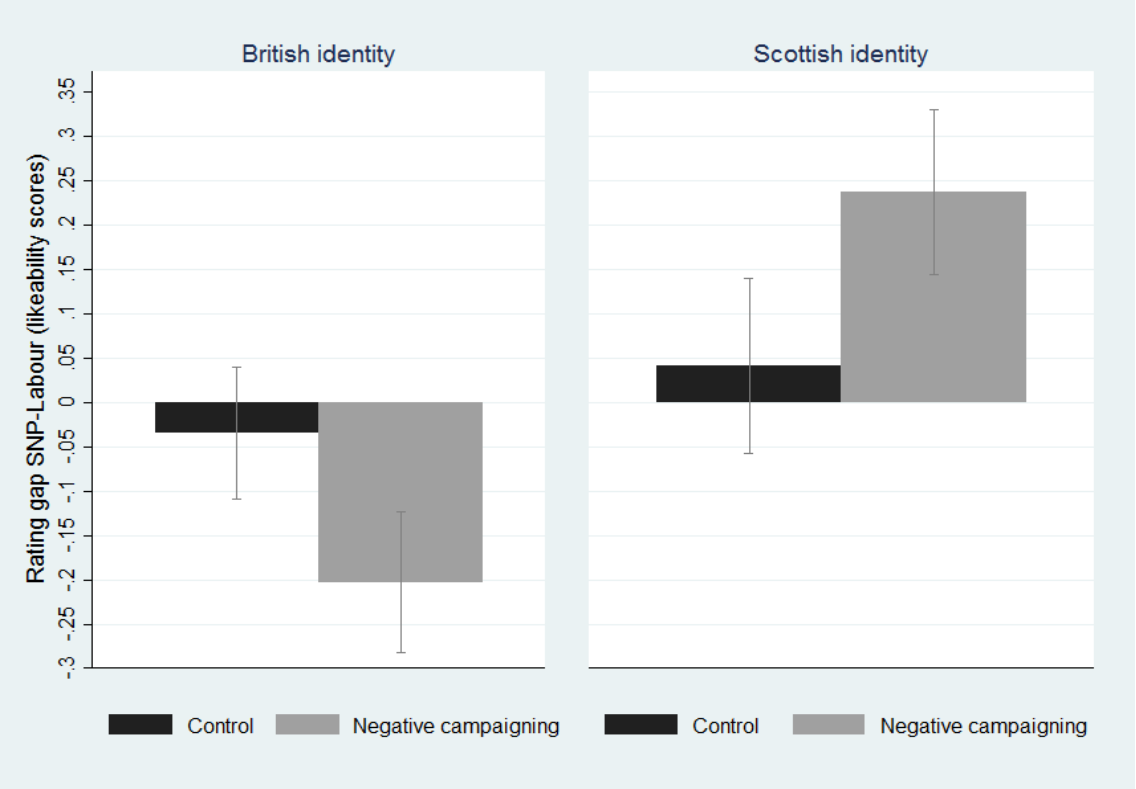


Note. Positive values on Y axis indicate higher rating of Labour in the treatment condition compared to control condition, and vice versa for negative values. Calculations based on Table 4.1 (Model 7), with 90% confidence intervals.

This polarising effect finds additional confirmation when party ratings are compared among each other. The results of this analysis confirm that negative statements affected support especially for Labour *relative* to the SNP (see Table 4.4 in Appendix A). As the bar graphs in Figure 4.3 clearly illustrate, attack statements polarised British and Scottish participants with regard to the rating of the SNP and the Labour party, since the rating gap between these two

parties increased in the treatment condition. A two-tailed t-test confirms that the differences between control and treatment group within each identity category are significant at the 0.05 level.

Figure 4.3. Effect of negative campaigning on Labour-SNP rating gap



Note. The more positive the values on the Y axis, the higher the rating of the SNP compared to Labour, and vice versa for negative values. 90% confidence intervals. P-values for the difference between control and treatment conditions (two-tailed t-test): British identity = 0.013, Scottish identity = 0.018.

The findings presented so far indicate that attack statements in the experimental setting affected support for parties in more complex directions than initially assumed. When only Scottish participants are taken into account, the analysis confirms the occurrence of the hypothesised backlash effect (H1) with regard to the Conservative and the Labour party, since exposure to negative statements reduced support for these parties. When the party rating gap is considered, the analysis suggests that an indirect reverse effect (H2) occurred with regard to the SNP, since participants increased support for this party relative to Labour. This result partially confirms the assumption that reverse effects of negative campaigning are more likely to occur

among parties that are ideologically close (H3). Yet, when only British participants are considered, the results show that negative campaigning actually benefited the sponsor of the attacks, especially when the target (the SNP) and the sponsor (Labour) are ideologically close, thus contradicting the original hypotheses. The fact that British and Scottish participants reacted differently to the treatment supports the assumption that national identity plays a crucial role in voters' response to negative statements, although only Scottish voters responded in line with theoretical expectations (H4).

4.5.2. Voting intentions

Following previous analysis of vote choice in the 2011 Scottish parliament elections (Carman et al., 2014), in the next step I tested the effects of attack statements on voting intentions, by adopting multinomial logistic regressions. The dependent variable takes separated values for the intentions to vote for each of the four parties included in the reading task. The models reported in Table 4.2 estimate whether the participants in the treatment group (conditional on their national identity) have a higher or lower probability to vote for one of the three Westminster parties rather than to vote for the SNP, which constitutes the base outcome.

In Model 1, the interaction terms indicate that negative campaigning significantly reduced the likelihood among Scottish participants (compared to British participants) to vote for the the Conservatives and Labour, relative to the likelihood of voting for the SNP. When party identification is introduced in Model 2, the interaction coefficient remains statistically significant only with regard to the likelihood of voting for Labour. In line with previous analysis of party likeability, results from Model 2 highlight that after exposure to attack messages against the SNP, British participants became more likely to vote for Labour *and* less likely to vote for the SNP compared to the control condition. On the other hand, negative campaigning significantly reduced the intentions to vote for Labour *and* increased the intentions to vote for the SNP

among Scottish participants compared to British, thus partially supporting the hypothesised backlash (H1) and reverse (H2) effects for this group of voters. The fact that a significant trade-off occurs only between the Labour and the SNP further supports the idea that negativity affects mostly ideologically close parties (H3).

Table 4.2. The effect of negative campaigning on voting intentions

	Voting intentions					
	Model 1 *(base outcome = SNP)*			Model 2 *(base outcome = SNP)*		
	Conserva-tive	Lib Dem	Labour	Conserva-tive	Lib Dem	Labour
Negative campaigning	0.69	1.39	0.47	-1.12	2.16	2.22*
	(1.00)	(1.22)	(0.95)	(1.81)	(1.66)	(1.35)
Scottish identity (vs. British)	-1.47*	-1.18	-1.58**	-1.33	-0.46	-0.09
	(0.79)	(1.15)	(0.70)	(1.44)	(1.42)	(1.05)
Neg. camp. * Scottish identity	-3.29**	-1.78	-2.19*	-1.02	-1.98	-3.49**
	(1.51)	(1.56)	(1.17)	(2.36)	(2.12)	(1.75)
Party ID						
- Conservative				4.91***	-17.06	-1.04
				(1.61)	(10131.2)	(1.82)
- Lib Dem				0.77	3.59***	0.19
				(1.49)	(1.29)	(1.05)
- Labour				-14.59	2.66	3.69***
				(2959.9)	(1.79)	(1.16)
- SNP				-0.55	-17.38	-18.06
				(1.63)	(4092.4)	(2020.5)
Constant	0.69	-0.69	1.32**	-0.67	-2.64*	-0.27
	(0.61)	(0.87)	(0.56)	(0.92)	(1.38)	(0.77)
McFadden's R2	.164			.637		
N	123			123		

Note. Multinomial logistic regressions, experimental data. Negative campaigning corresponds to assignment to treatment condition. Standard errors in parentheses. * p < 0.1, ** p < 0.05, *** p <0.01.

4.5.3. Voting behaviour

The analysis of BES panel data adds another important piece to the puzzle of negative campaigning, by showing how perceived negativity affected the actual vote in the 2015 general elections. Firstly, descriptive analysis of voters' perceived negativity confirms that the campaign conducted by the SNP was perceived as the most positive at both the sample level and after weighting for voters' party identification (see Table 4.5 in Appendix A), thus supporting the expectation that parties that are leading in the polls are less likely to engage in attack politics (Walter, 2014; Walter et al., 2014).

Secondly, analysis of single parties' campaign tone reveals that the more negative voters perceived a party's campaign to have been, the less likely they were to vote for the party (see Table 4.6 in Appendix A). The results mirror previous findings by Pattie and colleagues (2011: 340), and confirm the occurrence of a clear backlash effect, since voters were less likely to vote for a party if they perceived its campaign as negative. Moreover, there is evidence of reverse effects, since increased negativity from one party in some cases increased the likelihood of voting for another party. In particular, the SNP was the main beneficiary of attack statements by both the the Conservatives and Labour, since the more negative the Conservative and Labour campaigns were perceived to have been, the more likely voters were to cast their vote for the SNP compared to other parties.

In the final step, I tested whether perceived negativity of the campaign *in general* affected vote choice in the same directions as the experimental findings indicate. As mentioned in the design part, the key independent variable is a cumulative index of perceived negativity for the campaigns of the four parties considered in the analysis. Table 4.3 presents the results of multinomial logistic regressions that mirror the models previously used in the experimental setting (Table 4.2). In this case, the outcome is the actual vote for the Conservatives, Liberal Democrats, Labour and the SNP as recalled by the participants in post-election Wave 6.

Table 4.3. Perceived negative campaigning and vote

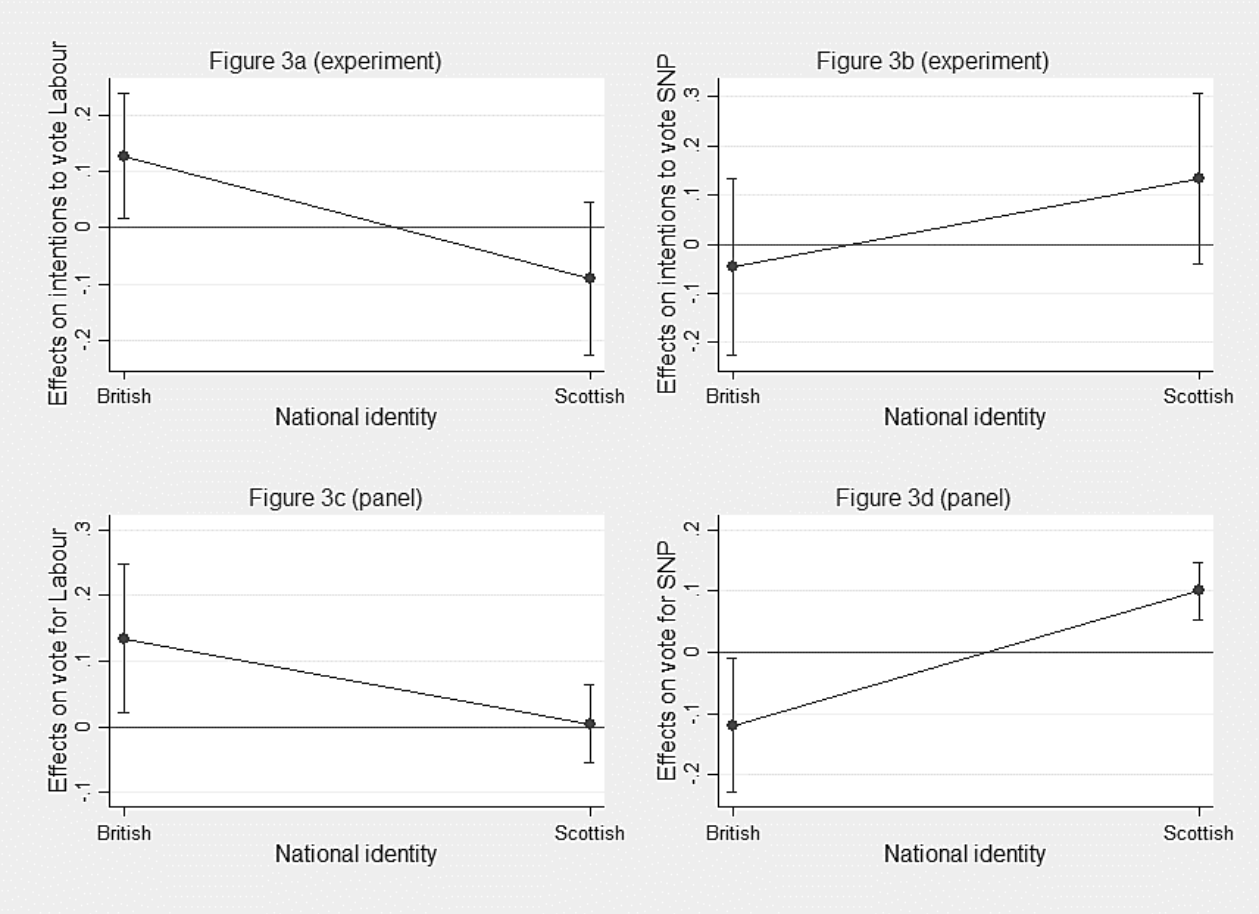
	Actual vote					
	Model 1 *(base outcome = SNP)*			Model 2 *(base outcome = SNP)*		
	Conservative	Lib Dem	Labour	Conservative	Lib Dem	Labour
Negative campaigning	3.14**	0.15	2.73**	3.34**	-0.24	2.15*
	(0.95)	(0.96)	(0.80)	(1.23)	(1.21)	(1.06)
Scottish identity (vs. British)	0.80	-0.29	0.58	2.42**	0.92	1.36*
	(0.61)	(0.60)	(0.48)	(0.77)	(0.73)	(0.63)
Neg. camp. * Scottish identity	-3.77***	-2.22*	-3.48***	-4.84***	-3.01*	-3.42**
	(1.06)	(1.10)	(0.87)	(1.35)	(1.34)	(1.15)
Party ID						
- Conservative	3.51***	2.43***	1.37***	2.01***	1.37***	0.67*
	(0.22)	(0.26)	(0.23)	(0.30)	(0.34)	(0.30)
- Lib Dem	0.30	2.74***	0.97***	-0.02	2.49***	0.75*
	(0.36)	(0.26)	(0.25)	(0.45)	(0.35)	(0.34)
- Labour	-0.76**	0.44*	1.78***	-0.49ǂ	0.48ǂ	1.19***
	(0.23)	(0.21)	(0.12)	(0.29)	(0.27)	(0.18)
- SNP	-3.70***	-3.67***	-3.50***	-2.12***	-2.31***	-2.23***
	(0.40)	(0.52)	(0.28)	(0.46)	(0.58)	(0.32)
Yes vote in future referendum				-2.59***	-2.36***	-2.25***
				(0.29)	(0.28)	(0.17)
Trust in MPs				2.19***	0.87*	0.97**
				(0.40)	(0.41)	(0.32)
Scottish govt. approval				-4.70***	-4.51***	-4.77***
				(0.44)	(0.45)	(0.38)
Performance future Labour govt.				-2.63***	-1.07*	1.05**
				(0.43)	(0.43)	(0.34)
Interest in elections				-0.15	0.46	0.64ǂ
				(0.44)	(0.46)	(0.35)
Constant	-1.99***	-0.72	-1.13*	1.08	2.30**	1.16
	(0.55)	(0.54)	(0.45)	(0.89)	(0.86)	(0.73)
Mc Fadden's R2	.411			.552		
N	3739			3509		

Note: Multinomial logistic regressions, BES panel data. Negative campaigning: values from 0 (positive) to 1 (negative). Trust in MPs: from 0 (no trust) to 1 (a great deal of trust). Approval of Scottish government: from 0 (strongly disapprove) to 1 (strongly approve). Performance of future Labour government: replies to the question 'If there were a Labour UK government today, do you think that [the economy] would be getting better, getting worse or staying about the same?' Answers from 0 (getting a lot worse) to 1 (getting a lot better). Interest in elections: from 0 (not at all interested) to 1 (very interested). Standard errors in parentheses. ǂ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The results from Model 1 show that, in the case of British respondents, the more negative they evaluated the campaign, the more likely they were to vote for the Conservatives and Labour rather than to vote for the SNP, after controlling for pre-election party identification. However, perceived negativity actually reduced the likelihood to vote for the Conservatives and Labour among Scottish respondents compared to British, as indicated by the negative interaction terms. The same results apply in Model 2 after controlling also for constitutional preferences and key elements of 'performance politics' that previous research has shown to be associated with support for the SNP (Carman et al., 2014; Curtice et al., 2009; Johns et al., 2013). Results from multinomial logistic regressions with panel data, therefore, confirm that national identity played a crucial role in mediating the effect of negativity on vote choice. Analysis of average marginal effects contributes to better understanding this mediating role.

Figure 4.4 illustrates the average marginal effects of negative campaigning on voting for Labour and SNP calculated on full multinomial regression models in Tables 2 and 3. The plots reveal a striking similarity between experimental and panel data, and highlight a polarising effect. Compared to a baseline of positive campaigning, negative campaigning increased the probability of voting for Labour by around 13 percentage points among British voters, while, at the same time, it increased the probability of voting for the SNP by around 10-13 percentage points among Scottish voters (although this effect is significant only in panel data analysis, Figure 3d). This final set of results confirms that both exogenous exposure to attack messages and endogenous perceived negativity had a similar effect on voting, since they shifted support for Labour and SNP in opposite directions depending on respondents' identity.

Figure 4.4. Average marginal effects of negative campaigning on voting for Labour and SNP by national identity



Note. Figure 3a and 3b: experimental data, calculations based on multinomial logistic regressions in Table 4.2, Model 2. Effects on intentions to vote for Labour (Figure 3a) and SNP (Figure 3b) with 90% CIs. Figure 3c and 3d: BES panel data, calculations based on multinomial logistic regressions in Table 4.3, Model 2. Effects on the actual vote for Labour (Figure 3c) and SNP (Figure 3d) with 90% CIs.

4.6. Conclusions

In this chapter I have investigated the effects of negative campaigning in the 2015 UK general elections in Scotland. Findings from an original experimental study and a nationally representative panel survey show that attack messages and campaign tone significantly affected voting behaviour and support for parties. In line with previous research (Pattie et al., 2011; Sanders and Norris, 2005), the analysis of single parties' campaign tone reveals that perceived negativity not only reduced support for parties (a backlash effect), but also increased support for the target of the attacks in certain cases (a reverse effect).

When the general campaign is taken into account, both experimental and panel data highlight that national identity crucially mediated the effects of negative campaigning, since both exposure to attack statements and perceived negativity increased support for Labour and the Conservatives among British voters, and, at the same time, increased support for the SNP among Scottish voters. In this sense, negativity polarised the electorate along identity lines, since it widened the gap between SNP supporters, on the one hand, and Labour and Conservative supporters, on the other. In line with previous research on parties' ideological proximity (Curini and Martelli, 2010; Haynes and Rhine, 1998; Walter, 2014), experimental results show that negativity affected mainly those parties that are ideologically close, i.e. the Labour party and the SNP.

These findings also contribute to explaining why the campaign strategy that was pursued by the main Westminster parties failed to prevent the SNP's landslide victory in the 2015 general elections. The explanation lies in the unequal distribution of voters by national identity feelings. If we consider that a few months before the elections only a fifth of voters in Scotland felt more British than Scottish, while around a half felt more Scottish than British – and within this half around 20 percent considered themselves as strongly Scottish[41] – the strategy of attacking the SNP might well have been more counter-productive than beneficial. As the results from this study show, attack politics certainly did not benefit the main Westminster parties with regard to the wide share of voters who identified as Scottish, and, if anything, it brought this share of voters even closer to the SNP.

From a more general perspective, the study in this chapter provides three main contributions to the research on negative campaigning. At the empirical level, the study shows not only that attack politics does affect voting behaviour, but also that the same campaign strategy can

[41] Data based on author's calculation from BES Internet panel data, Wave 4 (February/March 2014).

lead to opposite effects depending on key individual traits, such as national identity, thus proving beneficial *and* detrimental at the same time for some of the competing parties. Secondly, this study provides a methodological contribution, by combining a novel operationalization of negative campaigning with a more traditional self-reported measure. The fact that both experimental and survey measures lead to similar results increases confidence in the validity of the findings, and suggests that future studies might successfully address some of the inconsistencies in the current research on negative campaigning by combining different methods.

Lastly, at the theoretical level, these findings highlight a novel mechanism through which negativity can affect voting behaviour in different electoral contexts. This mechanism concerns the ability of negative campaigning to affect voters' sense of in-group membership by activating identity feelings. While, in the case of Scotland, 'identity' concerns mainly feelings of British versus Scottish national identity, in other contexts it might refer to other types of group memberships, based, for example, on ethnic, gender, or socioeconomic differences. What seems to determine the success of negative campaigning from the perspective of political parties is the correspondence between these types of memberships and voters' party identification. If in-group membership and party identification largely overlap – such as in the case of a single-issue party that supports the interests of a specific ethnic or gender group – reinforcing in-group membership by attacking the out-group might ultimately result in electoral benefits. However, the reverse should also hold. When voters belonging to different groups refer all to the same party – such as in the case of a catch-all party – the strategy to (inadvertently) attack one of these groups can push a share of voters away from the party, especially if group identity feelings overcome party identification. This mechanism seems to explain why a share of voters who identified as Scottish moved away from Labour when this party indirectly threatened their Scottish identity by attacking the SNP especially with regard to the issue of Scottish independence. In sum, the study in this chapter shows that the effects of negative campaign strategies

depend not only on the relationship between parties, but also on the complex dynamics between party cleavages and group identity cleavages. When group identity cleavages crosscut party cleavages, attacking political opponents on several issues can trigger unexpected reactions in the electorate and lead to both gains and losses on election day.

Appendix A

Table 4.4. The effect of negative campaigning on party 'rating gap'

	Like/dislike scores (gap between parties)						
	(1) Con Lib Dem	(2) Con Labour	(3) Con SNP	(4) Lib Dem Labour	(5) Lib Dem SNP	(6) Labour SNP	(7) Other parties SNP
Negative campaigning	0.02	-0.04	0.12	-0.06	0.10	0.17**	0.13**
	(0.05)	(0.06)	(0.08)	(0.05)	(0.07)	(0.07)	(0.06)
Scottish identity (vs. British)	-0.02	-0.07	-0.05	-0.05	-0.04	0.02	-0.02
	(0.05)	(0.06)	(0.08)	(0.05)	(0.07)	(0.07)	(0.06)
Neg. camp. * Scottish id.	-0.06	0.08	-0.14	0.14**	-0.09	-0.23**	-0.15*
	(0.08)	(0.09)	(0.11)	(0.07)	(0.09)	(0.09)	(0.09)
Party ID							
- Conservative	0.38***	0.58***	0.74***	0.20***	0.38***	0.18**	0.44***
	(0.06)	(0.07)	(0.08)	(0.05)	(0.07)	(0.07)	(0.07)
- Lib Dem	-0.20***	0.05	0.26***	0.25***	0.45***	0.20**	0.31***
	(0.07)	(0.07)	(0.09)	(0.06)	(0.08)	(0.08)	(0.08)
- Labour	-0.04	-0.18***	0.06	-0.14***	0.11*	0.25***	0.14**
	(0.05)	(0.06)	(0.08)	(0.05)	(0.07)	(0.06)	(0.06)
- SNP	-0.01	-0.10	-0.43***	-0.09*	-0.41***	-0.32***	-0.39***
	(0.06)	(0.06)	(0.08)	(0.05)	(0.07)	(0.07)	(0.07)
Constant	-0.12***	-0.17***	-0.26***	-0.05	-0.14**	-0.09*	-0.16***
	(0.04)	(0.05)	(0.06)	(0.04)	(0.05)	(0.05)	(0.05)
R2	.330	.453	.563	.297	.519	.407	.538
N	168	168	166	168	166	166	166

Note. OLS regressions, experimental data. Dependent variable constructed by subtracting the likeability scores of one party (e.g. Conservative) to the likeability scores of another party (e.g. SNP). Values rescaled from -1 to 1, with positive values corresponding to higher rating of the first party in the pair of parties (e.g. the Conservatives in Model 1), and negative values corresponding to higher rating of the second party in the pair of parties (e.g. Liberal Democrats in Model 1).

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

Table 4.5. Perceived campaign tone

	Conservative	Lib Dem	Labour	SNP
All respondents	0.66	0.59	0.62	0.40
(N=4087)	(0.33)	(0.30)	(0.32)	(0.38)
All respondents	0.72	0.61	0.66	0.29
weighted by party ID	(0.32)	(0.30)	(0.31)	(0.36)
(N=3353)				
By party identification				
- Conservative ID	0.33	0.55	0.71	0.73
(N=663)	(0.24)	(0.28)	(0.26)	(0.34)
- Lib Dem ID	0.60	0.35	0.59	0.56
(N=246)	(0.28)	(0.26)	(0.26)	(0.36)
- Labour ID	0.72	0.58	0.41	0.51
(N=920)	(0.31)	(0.29)	(0.30)	(0.37)
- SNP ID	0.76	0.67	0.73	0.13
(N=1290)	(0.31)	(0.29)	(0.30)	(0.20)
Mean by party ID	0.60	0.54	0.61	0.48

Note. BES panel data, Wave 5, only respondents living in Scotland. Perceived negativity: values from 0 (positive) to 1 (negative). Mean values, standard deviations in parentheses.

Table 4.6. Perceived negative campaigning (single parties) and vote

	The actual vote			
	(1) Conservative	(2) Lib Dem	(3) Labour	(4) SNP
Negative campaigning				
- Conservative	-1.99***	-0.49ǂ	0.48*	1.31***
	(0.27)	(0.27)	(0.20)	(0.26)
- Lib Dem	0.88**	-1.99***	0.07	-0.10
	(0.28)	(0.29)	(0.21)	(0.28)
- Labour	1.12***	-0.15	-1.66***	2.25***
	(0.29)	(0.29)	(0.22)	(0.28)
- SNP	0.64**	0.38	0.97***	-2.51***
	(0.23)	(0.24)	(0.19)	(0.25)
Party ID				
- Conservative	1.06***	0.09	-0.89***	-1.10***
	(0.19)	(0.24)	(0.19)	(0.30)
- Lib Dem	-0.98**	2.03***	-0.37	-0.81**
	(0.36)	(0.24)	(0.23)	(0.31)
- Labour	-1.11***	-0.07	1.17***	-0.36*
	(0.26)	(0.24)	(0.14)	(0.18)
- SNP	-1.95***	-2.12***	-1.69***	2.47***
	(0.46)	(0.58)	(0.31)	(0.26)
Scottish identity	0.32*	-0.18	-0.01	0.58**
	(0.16)	(0.16)	(0.12)	(0.19)
Yes vote in future	-1.52***	-1.18***	-1.64***	1.89***
referendum	(0.29)	(0.28)	(0.17)	(0.16)
Trust in MPs	1.70***	-0.36	0.12	-0.24
	(0.31)	(0.32)	(0.24)	(0.31)
Scottish govt.	-0.58ǂ	0.11	-1.10***	3.59***
approval	(0.31)	(0.32)	(0.25)	(0.37)
Performance future	-2.07***	-0.74*	1.61***	0.24
Labour govt.	(0.36)	(0.37)	(0.26)	(0.35)
Interest in elections	-0.84*	-0.18	-0.052	-0.92**
	(0.33)	(0.36)	(0.26)	(0.34)
Constant	-1.25*	-0.48	-0.60	-4.32***
	(0.49)	(0.48)	(0.37)	(0.50)
R2	.525	.269	.451	.716
N	3673	3673	3673	3673

Note. Logistic regressions, BES panel data. Negative campaigning: values from 0 (positive) to 1 (negative). Covariates: see Table 4.3. Standard errors in parentheses. ǂ p < 0.1, * p < 0.05, ** p < 0.01, *** p <0.001.

Table 4.7. Distribution of the participants by pre-treatment party identification

	Control group	Treatment group
Conservative	16.3	14.6
Liberal Democrat	8.2	10.7
Labour	26.5	10.7
SNP	11.2	23.3
Green party	26.5	25.2
Other parties	3.1	5.8
No party ID	8.2	9.7
Total	100	100
(N)	(98)	(103)

Note. P-value for the difference between groups (Pearson's chi-square test) = 0.051

Table 4.8. Support for parties by groups and identity categories

	Control group	Negative campaigning (treatment group)	P-values
All participants (N=201)			
Conservative	0.33 (0.28)	0.32 (0.29)	0.62
Liberal Democrat	0.44 (0.22)	0.44 (0.23)	0.99
Labour	0.53 (0.22)	0.49 (0.22)	0.27
SNP	0.54 (0.28)	0.56 (0.28)	0.78
British identity (N=81)			
Conservative	0.34 (0.26)	0.48 (0.28)	**0.03**
Liberal Democrat	0.44 (0.23)	0.52 (0.21)	**0.09**
Labour	0.48 (0.22)	0.57 (0.21)	**0.08**
SNP	0.44 (0.26)	0.38 (0.26)	0.25
Scottish identity (N=87)			
Conservative	0.36 (0.31)	0.21 (0.24)	**0.01**
Liberal Democrat	0.46 (0.22)	0.40 (0.23)	0.16
Labour	0.56 (0.23)	0.45 (0.23)	**0.02**
SNP	0.60 (0.30)	0.68 (0.25)	0.17

Note. The table reports mean values with standard deviations in parentheses for party likeability scores measured on an 11-point scale. Values rescaled from 0 (strongly dislike) to 1 (strongly like). P-values for the differences between control and treatment group, two-tailed t-tests.

Appendix B. Instructions and texts presented in the experiment

[Instructions]
In the following screens you will be asked to reply to some questions, in addition to reading a few short texts related to the UK general election on 7 May. The study will last around 15-20 minutes. Your answers will remain anonymous and will be treated with strict confidentiality. When you are ready to proceed, please click on Next

[Reading task – control group]
In the following screen, a table with four parties' positions on selected key issues will be presented. Parties' positions have been summarised by main UK media outlets on the basis of each party's manifesto for the upcoming general election. After reading the table, you will be asked to read four short texts with arguments in favour of some of the main UK parties. Please take your time and read all the information carefully.

[Table 1, control group: non-divisive issues]

	Conservatives	Lib Dems	Labour	SNP
Economy	Half of all Scottish government spending should come from taxes raised directly in Scotland	The Scottish Parliament should raise in tax more than half of what it spends in its budget	Scottish Parliament should be given power to introduce higher rates of tax, including a 50p rate	Restore the 50p top income tax rate for those earning more than £150,000
Jobs	Legislate to keep people working 30 hours on minimum wage out of tax	Expand apprenticeships and develop national colleges for vocational skills	Raise minimum wage to more than £8 an hour by 2019	Increase the minimum wage to £8.70 by 2020
Taxation	Raise personal allowance to £12.5k and 40% tax threshold to £50k	Raise up to £1.5bn from a tax on homes worth over £2m	Introduce a "mansion tax" on houses worth over £2m.	Introduce a mansion tax and crackdown on tax avoidance
Education	Allow individuals, parents and charities to set up new schools, similar to free schools in England	Support students from poorer backgrounds and raise threshold for graduates making repayments for Scottish student loans	Retain free university tuition for Scottish students studying in Scotland	Continue free university education in Scotland and support reduction of tuition fees across the UK
EU	Hold an "in-out" referendum on Britain's renegotiated EU membership by 2017	Hold an in/out referendum if there is a plan for "material transfer of sovereignty" from the UK	Reform the way the EU works but no referendum on British membership	Oppose a referendum on membership of the EU

[Table 2, treatment group: conflictual issues]

	Conservatives	Lib Dems	Labour	SNP
Economy	Eliminate the deficit and run an overall surplus by the end of the parliament	Deal with deficit by 2017/18 with a mixture of spending cuts & tax rises	Balance the books by cutting the deficit every year, with a surplus on the current budget and national debt falling in the next Parliament	Modest spending increase of 0.5% a year, enabling £140bn extra investment
Taxation	Raise personal allowance to £12.5k and 40% tax threshold to £50k	Banks taxed with an additional £1bn-a-year levy to help pay off the deficit	Re-introduce the 50% top rate of income tax for people earning over £150k, and the 10% starting rate	Tax on bankers' bonuses; bank levy
NHS	1,000 extra nurses funded by reintroducing means testing for prescription charges	£800m a year above inflation funding pledge to Scottish NHS	1,000 more NHS nurses and 500 more GPs	Deliver a total boost to the NHS Scotland budget of £2bn by 2020-21
Defence	Replace Trident with four submarines to maintain continuous at sea nuclear deterrent	End continuous at sea nuclear deterrent, enabling a cut in the number of submarines	A "minimum, credible, independent nuclear deterrent" based on continuous patrols	Oppose plans for a new generation of Trident nuclear weapons
Constitution	Devolve further powers to Scottish Parliament	Backs transfer of power from London to Scotland as part of Home Rule in the UK	Fully review how Holyrood and Westminster work together	The SNP "will always support independence"

[Reading task, instructions]
You will now be presented with four short texts supporting the three main parties in the Westminster Parliament and the main party in the Scottish Parliament. The texts are brief summaries of party leaders' key statements. Please note that there is no fictional information. The texts contain exclusively statements that have been reported by the main Scottish and British newspapers. Please take your time and read each text carefully. When you are ready to proceed, click on Next.

[Text 1 – The parts in brackets were displayed only to those in the treatment group]
Conservatives: "Only our party will guarantee a strong economy"

This is the most important election in a generation, and clearly, the election in Scotland is also crucial.

Never forget this election is a choice. We're choosing a UK government and the most important issue is who is going to have that economic plan that is creating jobs, keeping the United Kingdom strong. You can stick with the Conservatives, who have shown competence, who have shown decency, who have shown a long-term economic plan that has turned the country round or you can put that at risk.

If you stick with the Conservatives, you choose an economy that grows, that generates the money to ensure a properly funded and improving NHS. And you choose a government that will cut taxes for 30 million hardworking people and a country that is safe and secure.

[Across the United Kingdom we're warning of the danger of the unholy alliance between the people who want to bankrupt Britain, Labour, and the people who want to break up Britain,

the SNP. If the SNP succeeds on May 7, they are planning a bare-faced assault on British democracy. But we are not making any deals with the people who would break up Britain.]

There's only one party left holding the mantle of a strong United Kingdom and a strong economy. Only one party speaking above these warring tribes and about what actually matters to working people and it's the Conservative Party.

[Text 2 – The parts in brackets were displayed only to those in the treatment group]
Lib Dems: "We embody very different values"

Someone is going to hold the balance of power on 8 May and [it won't be the Conservatives or Labour. But it could be the SNP. Or it] could be the Liberal Democrats. A few hundred votes could make the difference between a decent, tolerant and generous government in the centre-ground and a 'coalition of grievance' involving other parties.

A Liberal Democrat government would raise the income tax threshold to £12,500, invest £8bn in the NHS, and help create 300,000 new jobs by 2020 as part of a plan to reinvigorate rural areas. Thanks to the Liberal Democrats, many of the low-paid no longer pay income tax and others have seen their tax bill reduced. So, on polling day, you should ask yourself if you want a government which panders to the extremes, [with the SNP sat at the Cabinet table], or do you want the Liberal Democrats? We embody very different values. We believe in a politics of generosity and tolerance and compassion and unity as a nation.

[The SNP would use a large block of MPs at Westminster to agitate for a second independence referendum. They are much more interested in the politics of division, but people want politicians who seek to bring communities together, not drive them apart.]

Only the Liberal Democrats will create a stronger economy and fairer society where everyone and every part of the UK can reach its full potential.

[Text 3 – The parts in brackets were displayed only to those in the treatment group]
Labour: "We are the only anti-austerity party in Scotland"

Scotland will decide the outcome of this election. If Scotland votes Labour, then Britain will have a Labour government and we can start the job of rebuilding our country.

We have a radical plan to transform Scotland, so that working-class families get a fair shot at life. A Labour government will introduce a Mansion Tax on properties worth £2 million so we can fund 1,000 more nurses in Scotland's NHS. And we will call time on exploitative zero hours contracts that cause so much harm particularly to young Scots in work.
If you vote Labour, you're voting for a completely different approach to the management of the economy, for a party that cares about the fact that inequality has grown, that can show through our record that we're committed to proper investment in public services.

[A vote for the SNP is one for austerity, because it makes more likely that the Tories remain in power, and because the SNP remains wedded to a fiscal approach for Scotland which rejects the pooling and sharing of resources across the United Kingdom. Their ultimate goal remains

the same. It's independence. And Labour is not going to put at risk the unity of the United Kingdom in a coalition with the SNP.]

Only Labour can credibly claim to be the anti-austerity party of Scotland. If you vote Labour, you're voting to end austerity in Scotland.

[Text 4 – The parts in brackets were displayed only to those in the treatment group]
SNP: "Only our MPs can achieve change"

The choice before the Scottish people has never been clearer. It is between the party that is standing for Scotland and the parties controlled by the London agenda. A vote for the SNP is a vote to say 'enough is enough' to [Tory, Labour or Lib Dem] austerity cuts. The more SNP MPs elected in May, the stronger Scotland's voice at Westminster will be.

SNP success can get the cuts [planned by Labour, the Tories and Lib Dems] reversed, in favour of modest increases in public spending to invest in jobs and services. Rather than wasting GBP100 billion on useless, immoral nuclear weapons of mass destruction, based just 30 miles from the city of Glasgow, we can instead invest in public services like our NHS. Westminster needs to change. To be more responsive to the needs and demands of ordinary people, wherever they are in the UK.

[It is no secret that the SNP supports independence for Scotland. The decision to hold another referendum would ultimately rest with Scottish voters, but short of independence, we want maximum powers, full financial powers for the Scottish Parliament. By electing a strong team of SNP MPs, the people of Scotland can push the Westminster parties to give as much power to Scotland as possible.]

Only SNP MPs can achieve change - power for Scotland and the delivery of progressive policies across the UK.

5.

More channels, fewer voters.

The impact of television on voting behaviour in Italy

5. 1. Introduction

The process of digitisation of information has radically changed the current media landscape. By dramatically lowering the costs of both production and distribution of content, digitisation has led to a steep increase in the availability of media options. As Mutz wrote in 2006, "no one questions the idea that there is more choice, that there are more media outlets now than thirty or forty years ago" (Mutz, 2006a: 224). Ten years hence, the steady growth in the use of the internet[42] – the medium of choice *par excellence* – indirectly confirms that the possibilities to access more information at a lower cost have significantly increased.

[42] A recent report by the Pew Research Center shows that in twenty years the percentage of American adults using the internet has risen from 14% in 1995 to 87% in 2014 (source: Pew Research Center, February 2014, "The Web at 25." A steep increase has been registered also in the Eurozone area in the

Over the last two decades, academic research has attempted to assess the implications of this shift to digital information for both the media environment and citizens. Besides the intuitive benefits of having access to more information, scholars have pointed also to the negative consequences of this new scenario. On the supply side, for example, theoretical models have shown that increased competition in the media market can lead to production not only of more targeted content, but also of more biased content (Mullainathan and Schleifer, 2005; Gentzkow and Shapiro, 2006; Sobbrio, 2014). On the demand side, scholars have underlined the risks of creating 'echo chambers' (Garrett, 2009; Sunstein, 2008, 2009), since online media facilitate exposure to information from likeminded sources. As argued by Stroud (2011: 66), citizens are "both empowered and burdened by extensive media choice", because they can broaden their views by accessing a more diverse range of sources, but they can also be exposed to a narrower range of viewpoints if they engage in information filtering – i.e. mostly accessing content in line with their existing predispositions. Evidence shows that information filtering occurs in particular with regards to political topics (Barberá et al., 2015a; Mutz and Martin, 2001; Stroud, 2008).

Another recent strand of research has attempted to assess the consequences of increased media availability on public opinion and political behaviour. By exploiting the geographical variation in the introduction of new media, studies have shown that the diffusion of radio (Strömberg, 2004), television (Barone et al., 2015; Durante et al., 2013; Gentzkow, 2006; Prior, 2007), news channels (DellaVigna and Kaplan 200; Enikolopov et al., 2011), and social media (Barberá et al., 2015b; Enikolopov et al., 2016) can affect voting behaviour and political participation. In line with these recent investigations, in this study I will analyse the impact of television on voting behaviour and turnout in recent election rounds in Italy.

last ten years, with 72% of individuals using the internet in 2013 compared to 33% in 2003 (source: Eurostat).

Despite a long-standing debate on the influence of television on Italian politics, the possibility of convincingly addressing the issue of causation has arisen very recently, due to the introduction of digital television as a new transmission technology. Between 2008 and 2012, Italian television switched from traditional analogue channels to new digital channels. As further described below, this change has resulted in a steep increase in the number of TV channels that deliver mostly entertainment content. Following Barone and colleagues' (2015) recent investigation on the case of Piedmont – in which digital television was introduced at different points in time within the same region – in this study I will exploit additional geographical variations in the introduction of this new transmission technology in the region of Lazio and in the centre-south of Italy. The key questions concern whether expanding entertainment media options in an environment with slanted news affects both turnout (through the supposed mechanism of *demobilisation*) and vote choice (through the supposed mechanism of *debiasing*). In particular, I will explore whether these effects last for a prolonged period of time, even after digital television has become available for the entire country.

The analysis will focus on two cases. The first one concerns the region of Lazio, which closely resembles the case of Piedmont. In the region of Lazio, four provinces switched to digital television in 2009, while one province switched only in 2011. In between these switch-over deadlines, regional elections took place in 2010. This particular setting represents a natural experiment that allows testing of whether variation in the outcome of the elections occurred between treated towns (i.e. towns with access to digital TV before the elections) and control towns (i.e. town with no access to digital TV at the time of the elections).

The second study exploits another source of geographical variation between west-coast and east-coast regions in the centre-south of Italy. This study aims to advance our knowledge of TV effects in at least two directions. Firstly, it tests whether increased availability in commercial and entertainment channels had an effect also on turnout in a referendum. This test can

be conducted by relying on the fact that four national referendums were held in June 2011, in between switchover deadlines in the centre-south of Italy. Secondly, this study aims to test whether media exposure has incremental effects that last over time. This assumption will be tested in relation to the 2013 national elections. Although these elections took place after the transition to digital TV was already completed, the fact that some areas had access to new digital channels for a significantly longer period than other areas might have influenced election results. In line with recent findings on the political legacy of Berlusconi's TV channels (Durante et al., 2013), the idea is to test whether a gap in the exposure to new digital channels had a long-term impact that could not be filled instantly once the entire country switched to the new transmission technology.

5.2. Identifying media effects

Since the early 2000s, increased scholarly attention has been dedicated to the effects of media exposure on public opinion and political behaviour. Recent survey-based studies, for example, have identified significant correlations between TV consumption and anti-American attitudes (Gentzkow and Shapiro, 2004), belief in the presence of weapons of mass destruction in Iraq (Kull et al., 2003), and support for Obama's healthcare reform (Baum, 2012). Other studies have also identified correlations between reading online blogs and extreme political opinions (Gentzkow and Shapiro, 2011; Lawrence et al., 2010). The general limitations of survey-based analyses, however, lie in the difficulty of pinning down causal effects, since they struggle to disentangle citizens' self-selection into media exposure from actual influence of the media. As Kinder and Palfrey (1993:14) pointed out, "observing that television news coverage and viewers' belief are correlated is not the same as establishing that television coverage influences viewers' beliefs".

The diffusion of the internet has triggered a new wave of research that aims to identify the multiple effects of this medium by adopting different methodologies. Studies on political campaigns, for example, have documented a significant influence of online campaigning on support for candidates (Gibson and McAllister, 2006, 2011), while other investigations have found out that tools such as e-voting (Trechsel, 2007) and voting-advice applications (Alvarez et al. 2014; Dinas et al., 2014) can impact turnout and political preferences. Additional research has shown that internet use and social media can have multiple effects on electoral uncertainty (Sudulich et al., 2014), political participation (Bakker and de Vreese, 2011), and protest activity (Barberá et al., 2015b; Enikolopov et al., 2016).

With regard to traditional news media, field experiments (Gerber, Karlan and Bergan, 2009) and panel-data analysis (Ladd and Lenz, 2009) have recently provided convincing evidence that reading newspapers can influence voting behaviour substantially. In the case of television, evidence of causal effects has been provided by DellaVigna and Kaplan's (2007) analysis of Fox News in the U.S. By exploiting the geographical variation in the introduction of this TV channel between 1996 and 2000, the authors documented that the introduction of Fox News significantly increased the Republican vote share in the 2000 presidential elections. Following a similar logic, Enikolopov and colleagues (2011) assessed the impact of the independent TV channel NTV on vote in Russia. By comparing areas where NTV was available at different points in time, they find that having access to this channel reduced support for the government party in the 1999 Russian parliamentary elections. As further discussed below, Barone and colleagues (2015) also provide similar evidence on the impact of new TV channels on vote share in Italy.

Further research has shown that not only news media, but also commercial television can influence support for political parties. By analysing the differential introduction of Berlusconi's

commercial TV network, Mediaset, in the early 1980s, Durante, Pinotti, and Tesei (2013) discover a long-term effect of early exposure to Mediaset channels on the electoral support for Berlusconi's party in the national elections held between 1994 to 2008. In particular, they find that "exposure to commercial TV can affect viewers' political attitudes and voting behaviour even in the absence of news coverage" (Durante, et al. 2013: 5). In line with Putnam's (2000) claim that television reduces social interactions – and, as a consequence, social capital and voter turnout – the authors provide a cultural explanation for their findings, suggesting that "Mediaset favoured the diffusion of a culture of individualism and civic disengagement which, later on, would favour the success of Berlusconi's political message" (ibid.: 4).

Lastly, evidence from Europe and the U.S. indicates that entertainment and commercial television can also reduce electoral participation. In an extensive analysis of the development of the media market in the U.S., Prior (2007) reveals that increased media choice affected electoral behaviour even before partisan news channels entered the market. By offering more entertainment options, first cable TV and later the internet reduced non-ideological voters' inadvertent exposure to news – which was a common condition during the period of low-choice broadcast television – thus reducing the motivation of these voters to turnout.

> "With the growth of cable television, the conditions for passive learning about politics came to an end. Analyses of three different sets of surveys all show that individual preferences become better predictors of political knowledge and turnout in a media environment that offers more content diversity and choice. They reveal that those who prefer entertainment and have access to new media display the lowest levels of political knowledge and turnout" (Prior, 2007: 135).

Evidence of a similar negative effect of TV exposure on turnout has been provided also by Aarts and Semetko (2003) in the Netherlands and by Gentzkow (2006) in an extensive analysis of the introduction of television in the American media market between 1940 and 1970. In sum, recent studies on the effects of television indicate that both news and entertainment channels

can influence voting behaviour and turnout in multiple directions. As discussed below, the recent diffusion of entertainment channels in a market with a substantial presence of biased news makes Italy a peculiar case to investigate the composite effects of television on vote and electoral participation.

5.3. Digital TV and biased news: The case of Italy

Despite the diffusion of the internet, television steadily holds primacy as a news medium in Italy, representing the first source of information on national politics for almost eight citizens out of ten in 2015.[43] In addition to this leading role in the news market, only two competitors – the public state broadcaster Rai and the Berlusconi-owned private broadcaster Mediaset – have historically attracted the overwhelming majority of TV audience,[44] resulting in what has been labelled as a *de facto* duopoly (Ortoleva, 2008). The dominant position of Mediaset, combined with the long-standing influence of politics on RAI (see for example Mazzoleni et al., 2011), has led to a persistent slant towards Berlusconi's party as documented by academic research (Durante and Knight, 2012; De Lucia, 1996), along with anecdotal evidence and official reports.[45]

The introduction of terrestrial digital television as a new transmission technology in 2008 brought a major change in this hitherto static scenario. By enhancing transmission efficiency, digital TV dramatically increases the number of channels available within the same limited spectrum of frequencies. Figure 5.1 from Mastrorocco and Minale (2015) clearly visualises the

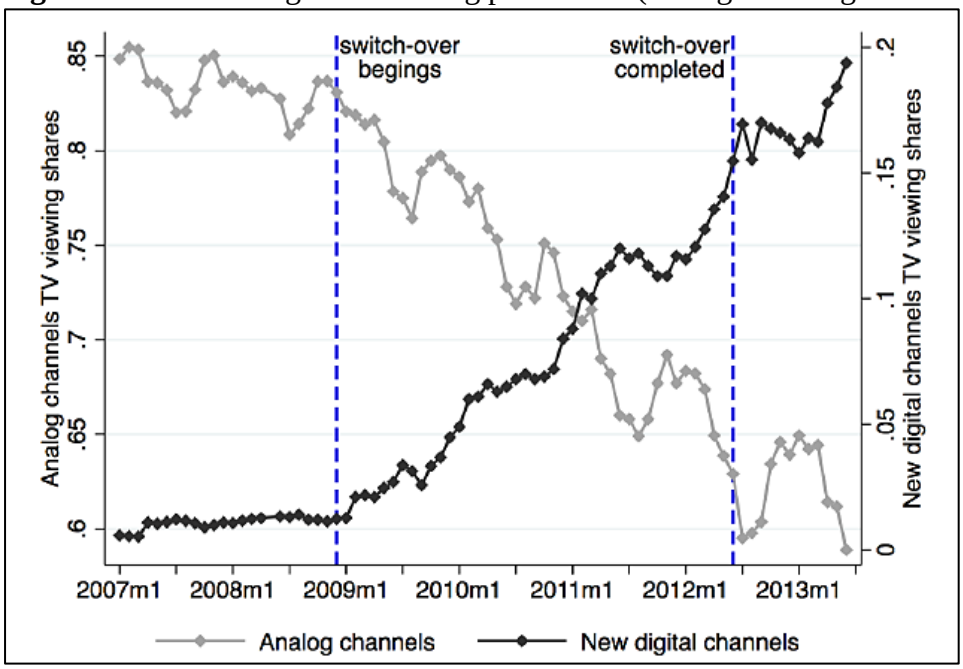
[43] Source: Standard Eurobarometer 84, Autumn 2015.

[44] In the beginning of the year 2000s, Rai and Mediaset alone attracted almost 90% of the audience. Source: Auditel data.

[45] As an example, on 28 April 2011 ("Delibera 224/11/CONS"), the Italian Communication Regulator, Agcom, stated that Prime Minister Berlusconi clearly received more news coverage than his opponents in the news programmes.

consequences of the shift from traditional analogue to new digital channels. Over a period of four years, the audience share of traditional TV channels dropped by around 20 percentage points, with a corresponding similar increase in the audience share of new digital channels.

Figure 5.1. Viewing shares during prime time (analogue vs. digital channels)



Note. Figure by Mastrorocco and Minale (2015), elaboration of Auditel data. The figure plots monthly TV viewing shares during prime-time for main traditional analogue channels (Rai and Mediaset) and new digital channels between 2007 and 2013.

The transition to digital TV has taken place at different points in time along a period of four years. The Italian territory was divided in five macro areas, and each area was assigned an analogue-signal switchover date set between October 2008 and July 2012. Digital television, however, was introduced gradually and individuals could access the new channels before switchover deadlines by adding a decoder to old television sets. The government subsidised economically disadvantaged households to guarantee that no one was 'left out' from the shift to the new technology. Crucially, the four-year transition period was regulated by a directive

of the European Union[46] and implemented in 2006 by the centre-left government. This particular administrative procedure guarantees that the geographical assignment to switchover deadlines could not be endogenously manipulated by ruling parties or local politicians.

The fact that switchover to digital occurred at different points in times – in some cases even within the same region – provides the setting for a natural experiment. In a recent analysis, Barone, Narciso and D'Acunto (2015) explored the case of Piedmont, in which the western part of the region (provinces of Turin and Cuneo) moved to digital TV in Autumn 2009, while all the other provinces in the eastern part completed the transition one year later. Regional elections took place in March 2010, during the period between switchover deadlines. This particular setting allowed the authors to identify a significant effect of early switch to digital TV on vote share in the regional elections. In particular, they find that "moving to digital TV reduced the vote share of Berlusconi's candidate by between 5.5 and 7.5 percentage points" (Barone et al., 2015: 49). This drop in the vote share occurred mainly through a reduction in the turnout, since the shift to digital reduced exposure to Berlusconi slant, which, in turn, reduced the motivation of the Berlusconi coalition's supporters to show up at elections (Barone et al., 2015: 53). Turnout dropped in particular in towns with more elderly and less educated voters.

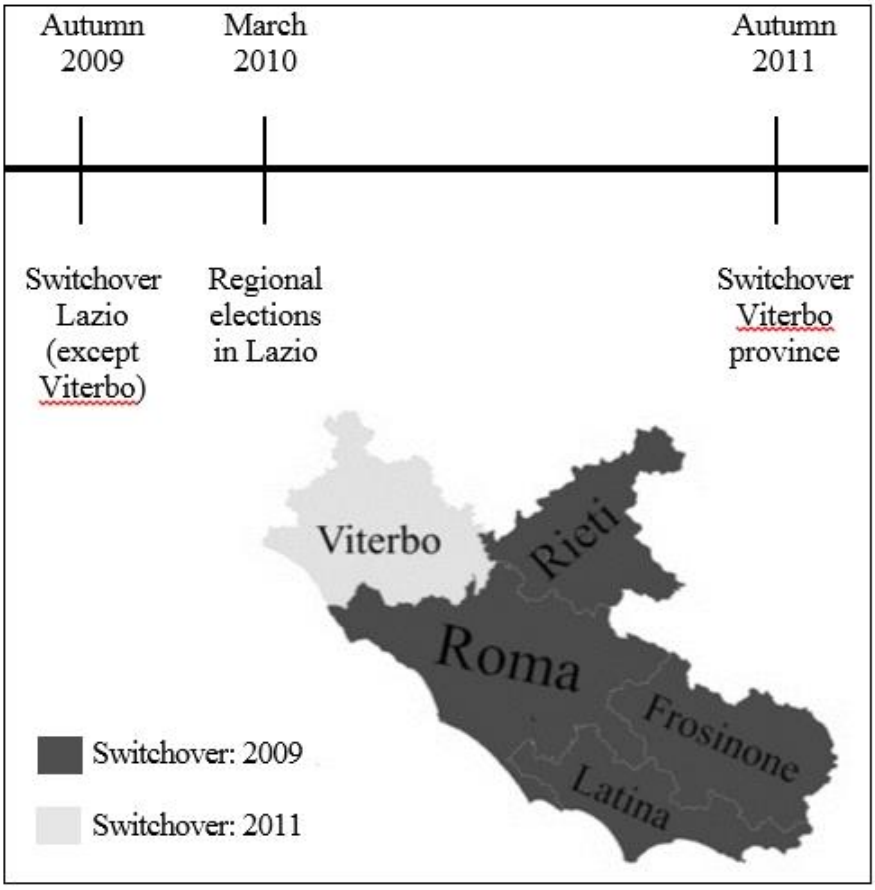
5.3.1. The case of Lazio

Similar to the case of Piedmont, in the region of Lazio the switchover to digital was implemented in 2009 in all the provinces apart from the province of Viterbo that moved to digital only in 2011 (see Figure 5.2 below). In between these two deadlines, in March 2010, regional elections took place, assigning a narrow majority of 51.1 percent of the votes to the candidate supported by Berlusconi's centre-right coalition. Compared to the previous 2005 regional elections, turnout dropped substantially, moving from 72.7 percent in 2005 to 60.9 percent in 2010.

[46] Directive 2007/65/EC of the European Parliament and of the Council of Europe, 11 December 2007.

Although the number of municipalities in Lazio is significantly smaller than the number of municipalities in Piedmont, this region represents a perfect test for a replication of Barone and colleagues' (2015) findings. In Study 1, therefore, I will analyse whether digital television reduced both vote share for the Berlusconi coalition's candidate and turnout in the region of Lazio.

Figure 5.2. Study 1: a natural experiment in the region of Lazio



5.3.2. A border in the centre-south

Apart from regional elections in Lazio and Piedmont, the only other *comparable* electoral consultation[47] that took place in between switchover deadlines were the four referendums that were

[47] In 2010, regional elections took place in almost all Italian regions. In theory, therefore, it would be possible to compare how transition to digital television affected vote choice in neighbouring regions

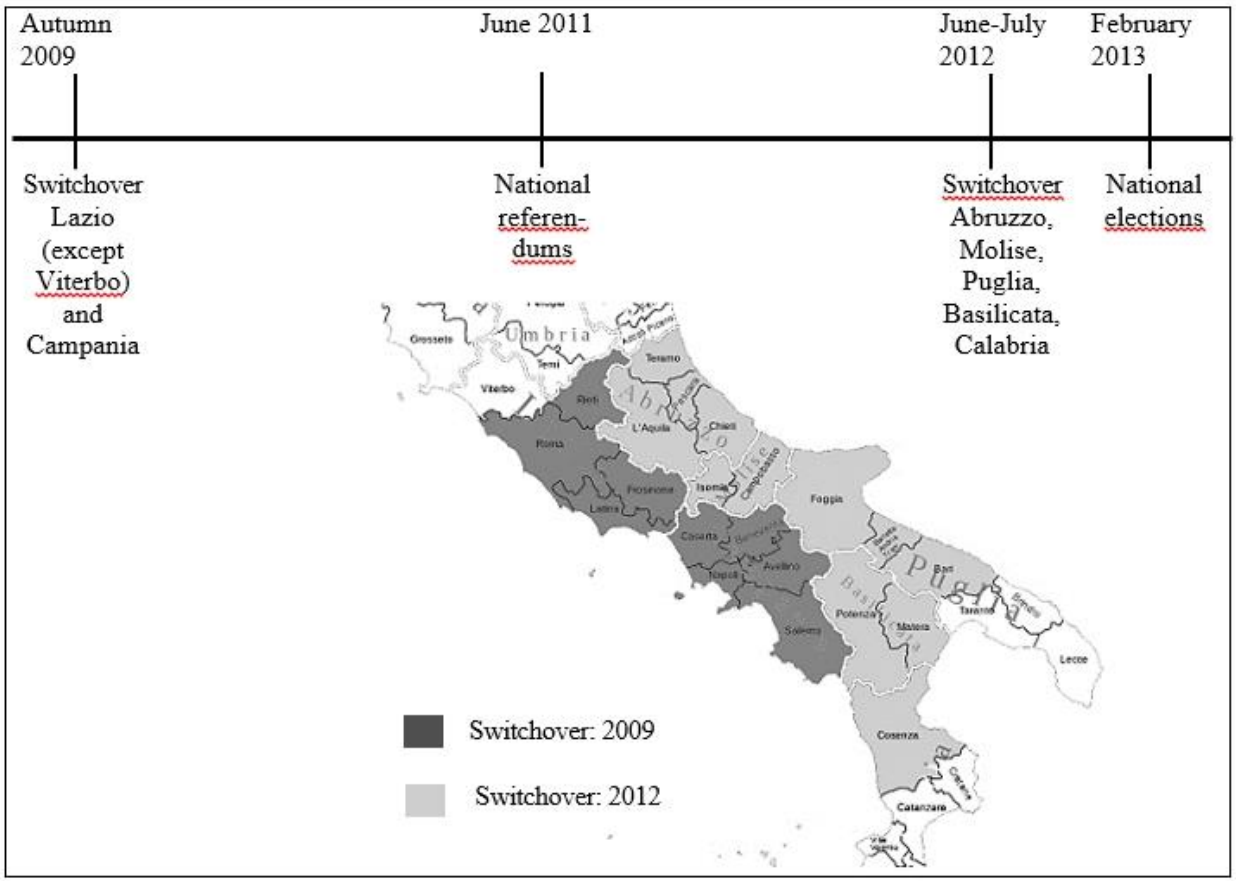
held in June 2011. While three referendums concerned public issues – such as privatisation of water supply and use of nuclear energy – the fourth one concerned the removal of a legal protection that mostly benefited Berlusconi in his role as prime minister at the time of the referendums. The political relevance of this consultation, therefore, makes it a suitable case to further analyse the effects of digital TV. Although an overwhelming majority of 95.2 percent of voters voted in favour of removing the prime minister's legal protection with homogenous results across the country, larger variation occurred in turnout, which ranged from a minimum of 21 percent to a maximum of 87 percent (SD=0.07). In Study 2, therefore, I will analyse whether early access to digital TV reduced turnout in the 2011 referendums in the centre-south of Italy. The choice of the centre-south part of Italy stems from the fact that a relevant three-year gap in the introduction of digital television took place in this part of the country, as illustrated in Figure 5.3. While the west-coast regions of Lazio (except for the province of Viterbo) and Campania had already moved to digital in Autumn 2009, the neighbouring regions of Abruzzo, Molise, Puglia, Basilicata and Calabria switched off analogue TV only in mid-2012.

Furthermore, if the effect of exposure to the new commercial channels lasts over time, as suggested by Durante and colleagues (2013), it can be assumed that this substantial three-year gap in the access to the new transmission technology might have also affected the national elections in February 2013. Although all the regions in the centre-south area had already moved to digital by the time of the national elections, a longer exposure to the new channels might

with different switchover deadlines. Barone and colleagues, for example, conducted a similar test by comparing vote share in the province of Cuneo in Piedmont, which switched off before 2010, with vote share in the region of Liguria, which switched off after the elections (Barone et al., 2015: 47). However, this analysis suffers from the crucial limitation that citizens in different regions voted for different candidates. Although the parties supporting regional candidates were similar across regions, citizens were casting a vote for specific governors, whose different personalities might have influenced the voting outcome in multiple ways.

still have affected the outcome of the elections. Thus, in addition to focusing on turnout in the 2011 referendums, in Study 2 I will analyse whether vote choice and turnout in the 2013 national elections differed between early-switchover and late-switchover towns in the centre-south of Italy.

Figure 5.3. Study 2: Exploiting variation in switch to digital TV in the centre-south of Italy



5.4. Hypotheses

The vast majority of new digital channels in Italy broadcast entertainment content. As confirmed by Auditel data (Mastrorocco and Minale, 2015), only around five percent of the viewing share of these channels is dedicated to news. In this sense, the introduction of digital television in Italy represents a case similar to the introduction of cable television in the U.S. Thus,

in line with both Prior's (2007) study and the empirical evidence on the effects of commercial television on turnout reviewed above, we can propose a first general hypothesis.

HYPOTHESIS 1. *A demobilisation effect*. By increasing the availability of entertainment options, digital television reduces inadvertent news exposure among non-ideological individuals, thus reducing their motivation to go to vote.

According to Hypothesis 1, we should observe a decrease in the turnout in the areas that switched to digital before the elections, compared to the areas that switched only after the elections. More specifically, we can assume that turnout in the 2010 regional elections in Lazio should drop less in the province of Viterbo compared to the other provinces in Lazio (Study 1), while turnout in the 2011 referendums should drop less in the east-coast regions in the centre-south compared to west-coast regions (Study 2). In addition, according to previous findings by Prior (2007) and Barone et al. (2015), the effect of television should be larger among low-educated and elderly people. Thus, we can hypothesise an interaction between the general demobilisation effect of digital TV and the socio-demographic composition of the different towns in the analysis.

HYPOTHESIS 1A. Digital television reduces turnout especially in the towns with more elderly and less educated people.

Given the peculiarity of the Italian TV environment, an increase in the number of new entertainment channels should lead to a reduction in the exposure to biased news that traditional analogue channels have broadcasted over the years. Therefore, in line with Enikolopv et al. (2011) and Barone et al. (2015), digital TV should indirectly reduce exposure to excessively pro-Berlusconi news content, thus leading to a drop in the vote share for his party. This means that in Study 1 we should observe a decrease in the vote share for the Berlusconi coalition's

candidate in the provinces of Lazio that switched to digital before the elections compared to the province of Viterbo that moved to digital only after regional elections.

HYPOTHESIS 2. *A debiasing effect*. By increasing the availability of entertainment options, digital television reduces the exposure to excessively pro-Berlusconi news, thus reducing the vote share for his coalition's candidate.

If the switch to digital TV causes an *immediate* effect on voting behaviour, as suggested by the findings in the region of Piedmont,[48] we should not observe geographical variation in the effects of digital TV on the elections that take place after the transition to the new transmission technology has completed. However, recent findings by Durante and colleagues (2013) indicate that a five-year gap in the exposure to commercial television can affect voting behaviour over a period of more than twenty years. Following these results, it seems plausible to assume that prolonged exposure to new entertainment channels can have an *incremental* effect that lasts over time. Hence, we should still observe variation across Italian regions over a certain period of time, after the transition to digital has completed. This leads to an additional hypothesis, which rejects the null hypothesis of no effects over time. According to this assumption, turnout and vote share for Berlusconi's party in the 2013 national elections should drop more in the towns that have had access to new digital channels for a longer period of time.

HYPOTHESIS 3. *A long-lasting effect*. The longer the exposure to digital television, the larger the effects, thus the demobilisation effect and the debiasing effect should be larger in early-switchover towns compared to late-switchover towns.

[48] The study by Barone et al. (2015) implies that digital television has an extremely short-term effect on voting behavior, since the drop in the Berlusconi coalition candidate's vote share occurred in the towns that moved to digital only six months before regional elections.

5.5. Study 1: The case of Lazio

All the provinces in the region of Lazio switched to digital TV around six months before the regional elections of March 2010, apart from the province of Viterbo that moved to digital only in Autumn 2011. This exogenous variation in the assignment to switchover deadlines allows to test the effect of digital TV on voting behaviour in the 2010 regional elections. The method adopted is a regression discontinuity design, in which being a switchover town is a discontinuous function of the distance from the border between the province of Viterbo and the other provinces (Barone et al., 2015: 38). Thus, the key independent variable in regression models is a "switch-over" dummy that takes a value of 1 for treated towns that moved to digital before the elections, and a value of 0 for control towns that did not move to digital at the time of elections.

Table 5.1. Summary statistics, region of Lazio

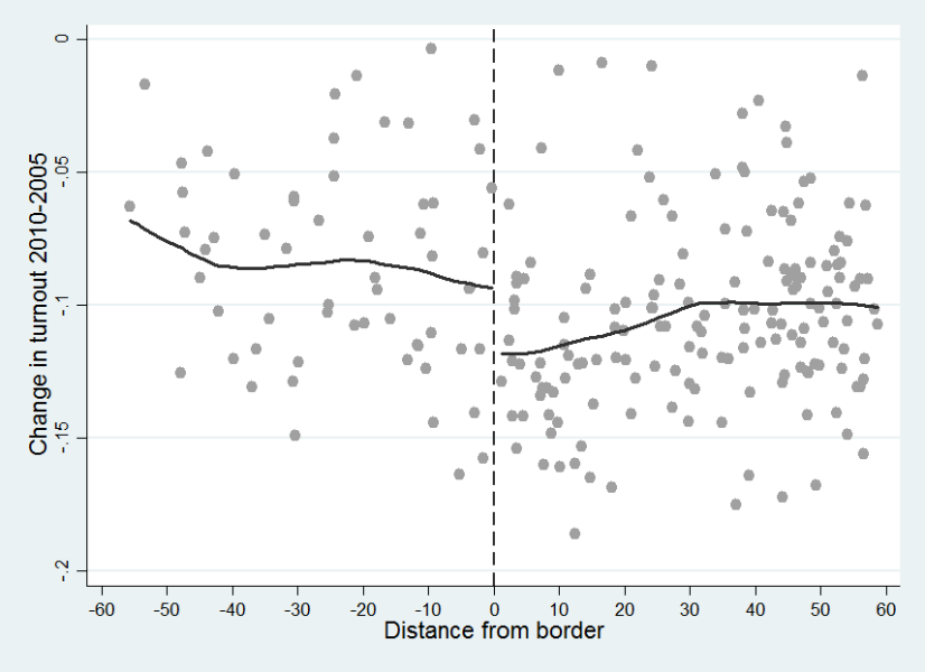
	Full sample (region of Lazio)			Distance from border < 60km		
	Control (Viterbo)	Treated (other prov.)	*p* value	Control (Viterbo)	Treated (other prov.)	*p* value
Population	4813	15169	0.576	4813	21446	0.516
Density	87.46	191.24	0.006	87.46	208.86	0.010
Size of families	2.44	2.52	0.033	2.44	2.39	0.295
Ratio 65+	23.04	21.72	0.015	23.04	22.68	0.741
Foreigners	20.63	18.48	0.245	20.63	23.51	0.175
High education	99.17	117.37	0.001	99.17	124.98	0.000
Illiterate	1.26	1.73	0.004	1.26	1.18	0.491
Average income	20054	20430	0.256	20054	20458	0.243
Unemployment	12.01	14.62	0.000	12.01	13.33	0.035
N	60	318		60	166	

Note. P values for two-tailed t-tests. All data from 2001 census (source: Istat).

The total sample of analysis includes 378 municipalities, with 318 treated towns and 60 municipalities in the control area of Viterbo. Distance from the border ranges from 56 km for the most northern town in the province of Viterbo to 176 km for the most southern town of the region. Clearly, the spatial distribution is unbalanced towards treated towns, with significant disparities

between the two group of towns. As summary statistics in Table 5.1 show, when the entire region is taken into account, control and treated towns differ with regard to several socio-demographic variables. However, when only towns within 60 km from the border are taken into account, the sample becomes more homogenous. As *p* values indicate, in this case the only significant differences concern the density of the population, education, and the unemployment rate. On average, towns in the province of Viterbo are less densely populated, have a lower share of highly-educated people and a lower unemployment rate compared to the towns within 60 km on the other side of the border. Given these imbalances, it is essential to control for these sociodemographic factors in regression models, in addition to controlling for distance from the border.

Figure 5.4. Change in turnout around treatment border (2010 regional elections in Lazio)



Note. Each dot corresponds to a municipality. Only towns within 60 km of the border between Viterbo and other provinces in Lazio. Distance is negative for control towns, positive for treated towns. Observation for one to ninety-nine percentile of the change in the turnout in the 2010 regional elections vs. 2005 regional elections.

Figure 5.4 plots the change in the turnout in the 2010 regional elections compared to the 2005 regional elections for each municipality in Lazio within 60km from the treatment border. Smoothed values of the kernel-weighted polynomial regression line show that turnout dropped

more in treated towns (positive distance from the border) compared to control towns (negative distance).

This initial result finds further confirmation in regression analysis in Table 5.2. Each panel of the table presents results from OLS regressions, in which the key independent variable "switchover" corresponds to a dummy with a value of 1 for treated towns. Each model controls for numerous socio-demographic and economic variables – including population density, number of families, gender ratio, education, average income, and unemployment rate – from 2001 census data (for the complete list of control variables, see Table 5.9 in the appendix). In odd columns the regression discontinuity polynomial is linear in distance, while in even columns it is a third-order polynomial. Although higher-order polynomials do not necessarily provide more conservative estimates,[49] the use of these polynomials is standard practice in studies based on regression discontinuity designs (see for example Barone et al., 2015; Card, Chetty, and Weber, 2007; DiNardo and Lee, 2004).

In Panel A, the dependent variable corresponds to the difference in the turnout between the 2005 and 2010 regional elections at the municipality level. The fact that the dependent variable is a 'delta' increases the robustness of the results, since it reduces the variation in the initial levels of turnout across towns. The results from this panel confirm the visual analysis in Figure 5.4. In line with Hypothesis 1, when the full sample is taken into account (Columns 1 and 2), regression coefficients indicate that in the towns that switched to digital before the 2010 elections, turnout dropped by 3-4 percentage points more than in control towns that had not moved to digital at the time of elections. This result still holds when the sample is restricted to

[49] A recent analysis by Gelman and Zelizer (2015) questions the common assumption in the literature that using high-degree polynomials in regression-discontinuity designs provides a more conservative estimate of the results. In the analysis that follows, therefore, both sets of results with linear and third-degree polynomials should be conceived as different estimates, and not necessarily as more or less conservative estimates.

the towns within 60km from the border (Columns 3 and 4) and within 30km from the border (Columns 5 and 6), although in the latter case the regression coefficient for the switchover variable is significant only when linear distance is included in the models. The results are not statistically significant only when the analysis is restricted to the small sample of 61 towns within 15km from the border (columns 7 and 8).

Table 5.2. Effect of switchover to digital television in 2010 regional elections in Lazio

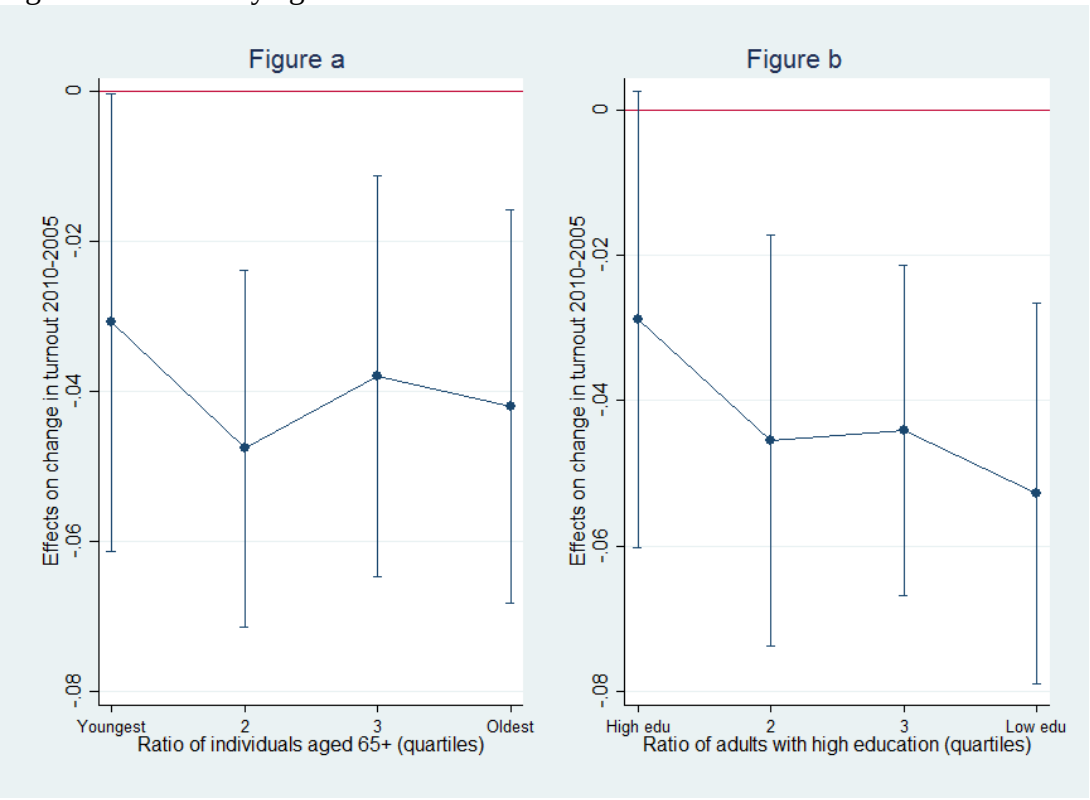
	Full sample		<60km		<30km		<15km	
	Linear distance	Cubic distance	Linear distance	Cubic distance	Linear dis-tance	Cubic distance	Linear dis-tance	Cubic dis-tance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Dependent variable: change in turnout 2005-2010								
Switchover	-0.042	-0.031	-0.031	-0.035	-0.032	-0.024	0.005	-0.002
Robust st. err.	0.009***	0.012***	0.011***	0.015**	0.016**	0.023	0.027	0.038
R^2	.269	.272	.236	.241	.434	.441	.506	.514
Panel B. Dependent variable: change in centre-right candidate's votes gained/lost in 2010 vs. 2005								
Switchover	-0.007	-0.003	-0.013	-0.023	-0.027	-0.059	-0.021	0.082
Robust st. err.	0.031	0.037	0.036	0.047	0.044	0.051	0.052	0.087
R^2	.158	.162	.211	.213	.201	.209	.285	.338
Panel C. Dependent variable: change in centre-left candidate's votes gained/lost in 2010 vs. 2005								
Switchover	-0.054	-0.069	-0.064	-0.072	-0.103	-0.078	-0.103	-0.136
Robust st. err.	0.029*	0.036*	0.034*	0.046	0.048**	0.066	0.080	0.103
R^2	.164	.166	.219	.219	.288	.274	.382	.390
Sociodemo-graphic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	356	356	210	210	103	103	61	61

Note. OLS regressions. *** p < 0.01, ** p < 0.05, * p< 0.1

Panels B and C replicate the same analysis using the difference in the vote share for centre-right and centre-left candidates between 2005 and 2010 as dependent variables. Results from Panel B indicate that moving to digital television did not significantly reduce the vote share for

the Berlusconi coalition's candidate. Although the negative sign of regression coefficients is in line with theoretical expectations, none of these results reaches common level of statistical significance. On the other hand, results from Panel C indicate that a similar drop unexpectedly occurred also in the vote share for the centre-left candidate in the towns that switched to digital. In this case, when the full sample is taken into account (Columns 1 and 2) the results are marginally significant at the .01 level. The implications of these null findings are further discussed below.

Figure 5.5. Average marginal effect of switch to digital TV on change in turnout in 2010 regional elections by age and education



Note. Figure a: ratio of individuals aged 65-plus over the whole population (quartiles). Figure b: ratio of adults aged 25-64 with high school or university degree over the whole number of adults aged 25-64 (quartiles). 95% confidence intervals

In the last step of the analysis, I tested whether digital television had heterogeneous effects across different towns by introducing interactions with the ratio of elderly people and the ratio

of highly-educated people. Figure 5.5 presents the results of this analysis using average marginal effects. Both figures show that no significant interactions occurred (see results from regression analysis in Table 5.10 in the appendix), since turnout dropped similarly in the towns in the second, third and fourth quartile of age and education. However, the fact that turnout did not drop significantly both in the towns with the lowest ratio of elderly people and in the towns with the highest ratio of highly-educated partially confirm the theoretical expectations in Hypothesis 1A that digital television should have the smallest effects in these towns.

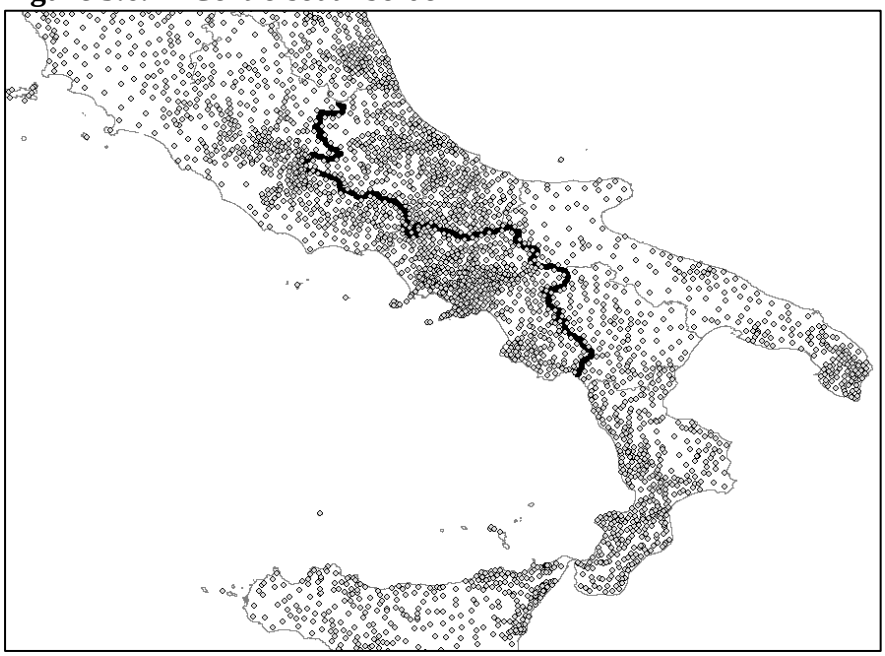
In sum, the analysis in Study 1 confirms previous results on the demobilising effect of digital television. Increased availability of entertainment channels led to a drop in turnout of 3-4 percentage points more than in control towns. In line with theoretical expectation, this drop in turnout did not occur in the towns with the lowest ratio of elderly and less educated people. Theoretical expectation on the debiasing effect of digital television, however, did not find confirmation, since moving to digital did not significantly influence the vote share for the Berlusconi coalition's candidate.

5.6. Study 2: A border in the centre-south of Italy

In the second study, I analyse whether the difference in switchover deadlines to digital television in the centre-south affected turnout in the 2011 referendums and voting behaviour in the 2013 national elections. In line with Study 1, the method of analysis consists of a regression discontinuity design, in which the threshold corresponds to the border in the centre-south part of Italy, as illustrated in Figure 5.6. On the west side, the regions of Lazio (except for the province of Viterbo) and Campania switched to digital in Autumn 2009, while, on the East side, the regions of Abruzzo, Molise, Puglia, Basilicata and Calabria moved to digital in June-July 2012. To increase the homogeneity of the sample, only the provinces of Foggia, Barletta-Andria-Trani, and Bari in the region of Puglia, and the province of Cosenza in the region of

Calabria have been considered, since the other provinces of these regions are excessively distant from the border.

Figure 5.6. Centre-south border



The final sample includes 1708 municipalities, divided between 869 with early access to digital TV (West) and 839 with late access (East). Distance from the border ranges from 105 km for the most western municipality to 143 km for the most eastern municipality. Summary statistics in Table 5.3 show that despite the existence of variation across towns from different regions, only a few demographic indicators significantly differ between the two groups. When the sample is restricted to towns within 30km from the border, the only significant difference concerns the density of the population, which is higher in the towns in the west area.

Table 5.3. Summary statistics, centre-south

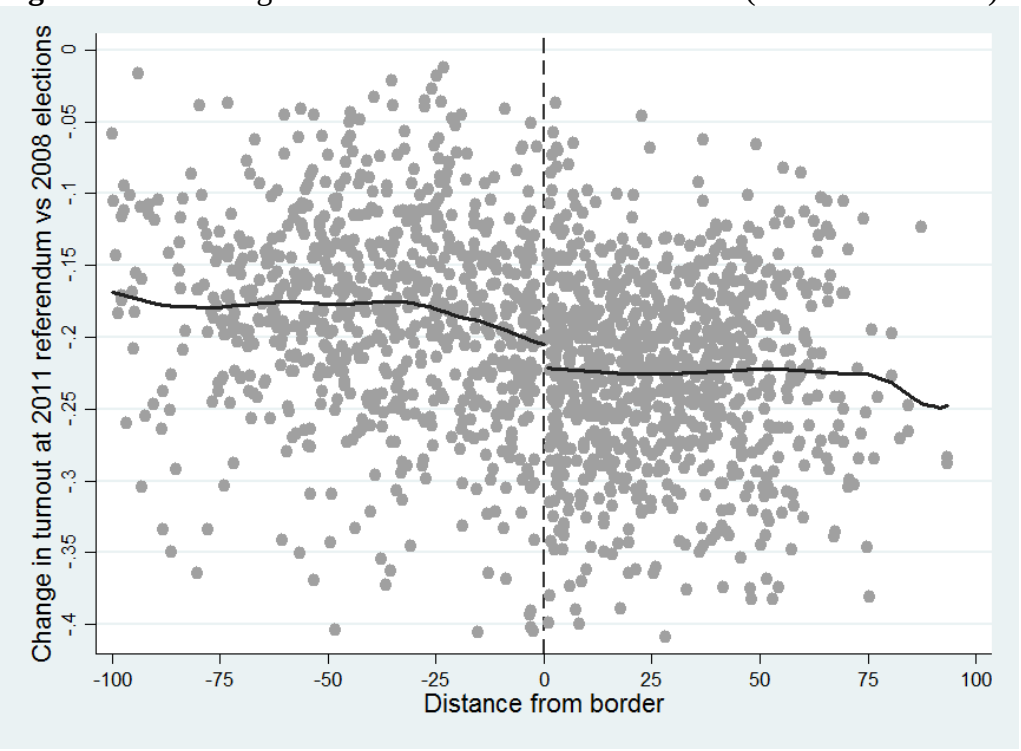
	Full sample			Distance from border < 30km		
	Late switchover (East)	Early switchover (West)	*p* value	Late switchover (East)	Early switchover (West)	*p* value
Population	6172	12609	0.175	3247	3825	0.421
Density	122.85	588.42	0.103	56.25	116.54	0.002
Size of families	2.38	2.50	0.096	2.31	2.36	0.398
Ratio 65+	24.46	20.78	0.012	25.14	23.46	0.132
Foreigners	33.86	38.44	0.646	36.05	41.58	0.711
High education	146.13	147.41	0.872	148.01	145.49	0.831
Illiterate	2.62	2.15	0.428	2.17	2.32	0.844
Unemployment	14.80	16.36	0.412	14.01	14.66	0.671
N	839	869		307	486	

Note. P-values for paired t-tests of the difference of the means. Standard errors clustered at the province level.

5.6.1. The 2011 referendums

In the first step of the analysis, I tested whether access to digital television influenced turnout in the 2011 national referendums. Figure 5.7 plots the change in the turnout in the 2011 referendums compared to the turnout in the 2008 national elections. As in the case of Lazio, the polynomial regression line indicates that turnout dropped more in treated towns (positive distance from the border) compared to control towns (negative distance). However, the difference between treated and control towns in this case is smaller, and smoothed values on the regression line indicate that an unexpected decrease in the turnout occurred already among control towns within less than 25km from the border.

Figure 5.7. Change in turnout around treatment border (2011 referendums)



Note. Each dot corresponds to a municipality. Only towns within 100 km from the centre-south border. Distance is negative for control towns, positive for treated towns. Observation for one to ninety-nine percentile of the change in the turnout in the 2011 referendum vs. 2008 national elections.

Table 5.4 presents results from regression analysis of the change in the turnout in the 2011 referendums compared to the turnout in the 2008 national elections. Preliminary analysis of the dependent variable revealed the presence of relevant outliers, mostly due to small towns in which a small increase or decrease in the number of people who went to vote resulted in a large change in the turnout (see Figure 5.12 in the appendix). Given that outliers can alter significantly the coefficients of linear regressions, I adopted two types of adjustments to obtain more reliable estimates. In Panel A, I removed the outliers from the original dependent variable, and subsequently conducted linear regressions on the newly obtained variable. In addition, I clustered the standard error at the province level, since in regression discontinuity designs residuals might be correlated at the level of the provinces at which the treatment is assigned to (Barone et al., 2005: 41). Clustering at the province level increases the reliability of the results, by reducing the 'noise' related to the geographical heterogeneity of the sample. In Panel B, I used

median regressions, in which the coefficients were estimated by minimizing the absolute deviations from the median (Koenker and Hallock, 2001) instead of the deviations from the mean. By relying on the median, these regressions are less sensitive to the presence of outliers, thus in this model the dependent variables include all the observations in the sample.

Table 5.4. Effect of switchover to digital television on turnout in 2011 referendums

	Full sample		<60km		<30km		<15km	
	Linear distance (1)	Cubic distance (2)	Linear distance (3)	Cubic distance (4)	Linear distance (5)	Cubic distance (6)	Linear distance (7)	Cubic distance (8)
Panel A. OLS regressions (outliers excluded)								
Switchover	-0.025	-0.021	-0.024	-0.015	-0.014	-0.009	-0.008	-0.034
Clustered st. err. (province)	0.014*	0.016	0.016	0.016	0.017	0.016	0.018	0.017*
R^2	.349	.350	.309	.312	.322	.329	.260	.267
N	1660	1660	1361	1361	772	772	418	418
Panel B. Median regressions								
Switchover	-0.016	-0.011	-0.017	-0.007	-0.021	-0.024	-0.008	-0.042
Robust st. err.	0.006***	0.008	0.008**	0.009	0.010**	0.013*	0.016	0.020**
Pseudo-R^2	.239	.240	.208	.212	.210	.214	.169	.174
N	1708	1708	1401	1401	793	793	430	430
Sociodemographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. Sociodemographic controls from 2011 census (for complete description, see Table 5.9 in the appendix). Electoral controls: change in the turnout in 2008 vs. 2006 elections, and in 2006 vs. 2001 elections. Spatial controls: longitude and dummy variable with a value of 0 for centre areas (Lazio and Abruzzo) and a value of 1 for south areas (Campania, Molise, Puglia, Basilicata, and Calabria). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In line with Study 1, the independent variable "switchover" corresponds to a dummy with a value of 1 for treated towns in the western area. Control variables include a set of socio-

demographic and economic indicators from 2011 census data, in addition to electoral and spatial covariates to further control for the heterogeneity of the sample (for the full list of covariates, see Table 5.9 in the appendix). Electoral controls include the change in turnout in pre-digital TV elections (2008 vs 2006 elections, and 2006 vs 2001 elections). Spatial controls include an indicator of the longitude of each municipality and a dummy variable for the areas in the centre and the areas in the south in order to control for eventual north-south differences.

Results from Table 5.4 provide a mixed picture. While regression coefficients are all negative, in line with predictions, in Panel A they are significant only in two cases. Statistical significance of the estimates improves when analysis is conducted with median regressions in Panel B. In this case, linear-distance models in Columns 1, 3, and 5 indicate that turnout dropped by 2 percentage points more in treated towns in the west compared to control towns in the east. Analysis with third-order polynomials, however, shows significant results only within the restricted samples of towns within 30km and 15km from the border.

Results from Panel A and Panel B indicate that the estimates of the effects of digital television on turnout in the 2011 referendums are sensitive to both the type of regression analysis and the specifications of the models. Additional control tests in Table 5.5 provide partial explanation for these heterogeneous results. The table presents results from application of the same linear regression models used in Panel A in Table 5.4 but on different subsamples. In the first and second columns, I run the regression models only in the central regions of Lazio and Abruzzo, while in the third and fourth I considered only the other southern regions. Regression coefficients indicate that, while a significant drop in the turnout occurred in the region of Campania versus the other southern regions (Columns 3 and 4) in line with expectations, the same effect did not take place in the central regions. On the contrary, the second column shows that turnout actually increased in treated towns in Lazio compared to control towns in Abruzzo

within 30km from the border. These mixed results suggest that significant heterogeneity at the geographical level might have confounded the effect of the treatment.

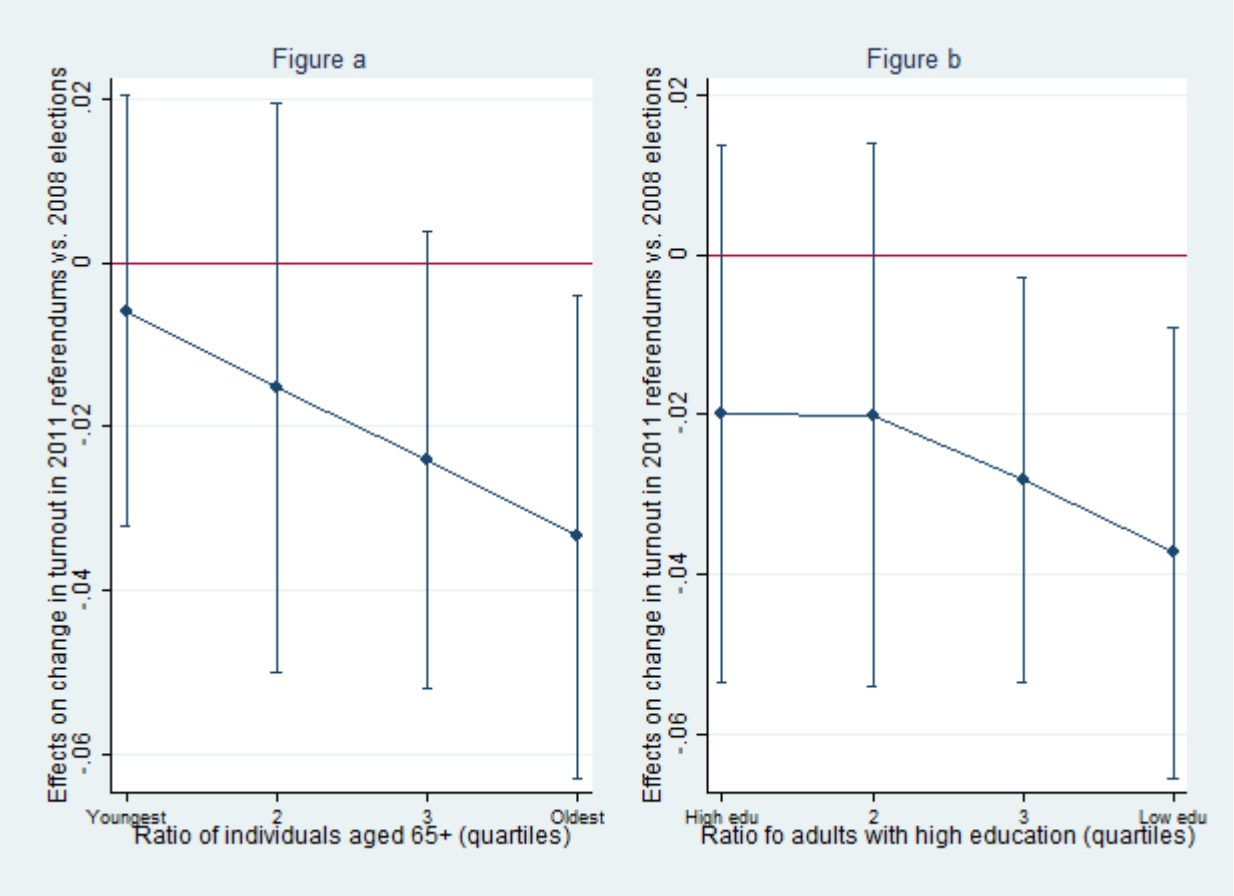
Table 5.5. Placebo tests on change in turnout in 2011 referendums

	Centre regions only		South regions only		Placebo border West		Placebo border East	
	All towns	<30km	All towns	<30km	All towns	Half dis-tance	All towns	Half dis-tance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Switchover	0.016	0.033	-0.042	-0.034	-0.008	-0.012	0.009	0.010
Clustered st. err. (province)	0.017	0.011**	0.013***	0.015*				
St. error					0.008	0.010	0.008	0.010
Sociodemo-graphic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral con-trols	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Longitude	No	No	No	No	Yes	Yes	Yes	Yes
R^2	.225	.247	.461	.472	.328	.371	.278	.322
N	612	338	1048	434	851	424	809	438

Note. OLS regressions of change in turnout in 2011 referendums vs 2008 elections excluding outliers, linear distance. Centre regions: Lazio and Abruzzo. South regions: Campania, Molise, Puglia, Basilicata and Calabria. Sociodemographic and electoral controls: see note in Table 4. *** p < 0.01, ** p < 0.05, * p< 0.1.

In Columns 5 to 8, I introduced artificial borders in West and East areas, following Imbens and Lemieux (2008) and Barone et al. (2015). In Columns 5 and 6 the artificial border has been shifted at 60 km west from the real border, while in Columns 7 and 8 the artificial border is at 60 km east. If the treatment effect works in line with the assumption, we should not find significant variation within treatment and control areas, when the border is artificially moved. Placebo tests confirm that being artificially assigned to treatment or control towns within west and east areas did not have an effect on turnout in the referendums.

Figure 5.8. Average marginal effect of switch to digital TV on change in turnout in 2011 referendum by age and education



Note. Figure a: ratio of individuals aged 65-plus over the whole population (quartiles). Figure b: ratio of adults aged 25-64 with high school or university degree over the whole number of adults aged 25-64 (quartiles). 95% confidence intervals.

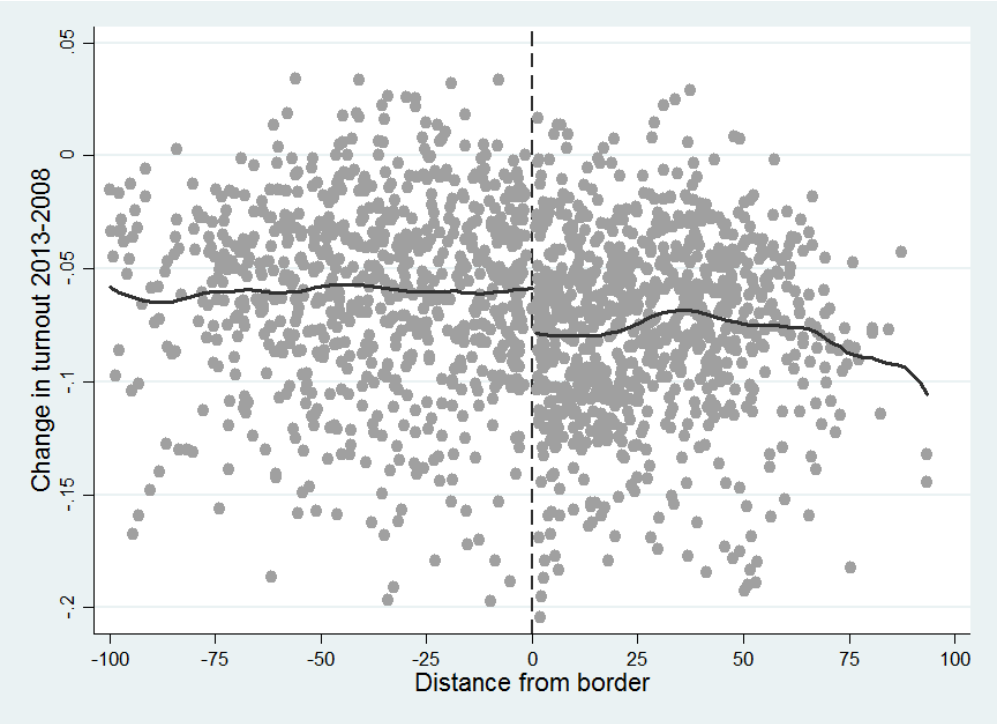
Lastly, interactions analysis in Figure 5.8 confirm the expectations that the effect of digital television should be larger within towns with more elderly and less educated people (H1A). Figure a shows a clear interaction, since the average marginal effects of digital television on turnout increases as the ratio of individuals aged 65 or over increases (see regression analysis in Table 5.11 in the appendix). In line with expectations, this effect is statistically significant in the towns with the higher ratio of elderly people (fourth quartile). Turnout dropped by 3 percentage points more in the towns that switched to digital before the referendums compared to the towns that switched after the referendums. Figure b shows that a similar result occurred within the towns with the lower ratio of highly-educated people. In this case, in the third and

fourth quartile, turnout dropped by 3-4 percentage points more in treated towns compared to control towns.

5.6.2. The 2013 national elections

In the final part of the analysis, I replicated the same regression discontinuity design to test whether the gap in the digital switchover also affected voting behaviour in the 2013 national elections. The key difference, in this case, concerns the lack of a 'pure' control area, since all towns had already completed the transition to digital by the time the national elections took place. Despite the completed transition, however, visual analysis in Figure 5.9 shows that a difference in the turnout persisted even in the 2013 national elections. Turnout in the 2013 elections dropped more in early-switchover towns (positive distance from the border) compared to late-switchover towns (negative distance).

Figure 5.9. Change in turnout around treatment border (2013 national elections)



Note. Each dot corresponds to a municipality. Only towns within 100 km from the centre-south border. Distance is negative for late-switchover towns, positive for early-switchover towns. Observation for one to ninety-nine percentile of the change in the turnout in the 2013 national elections vs. 2008 national elections.

Table 5.6. Effect of switchover to digital television on turnout in 2013 elections

	Full sample		<60km		<30km		<15km	
	Linear distance (1)	Cubic distance (2)	Linear distance (3)	Cubic distance (4)	Linear distance (5)	Cubic distance (6)	Linear distance (7)	Cubic distance (8)
Panel A. OLS regressions (outliers excluded)								
Switchover	-0.018	-0.024	-0.021	-0.022	-0.022	-0.020	-0.015	-0.027
Clustered st. err. (province)	0.009**	0.009**	0.009**	0.009**	0.009**	0.011*	0.009	0.010**
R^2	.278	.286	.271	.272	.258	.258	.274	.281
N	1661	1661	1362	1362	772	772	415	415
Panel B. Median regressions								
Switchover	-0.014	-0.023	-0.019	-0.026	-0.030	-0.034	-0.028	-0.031
Robust st. err.	0.003***	0.004***	0.004***	0.005***	0.006***	0.008***	0.008***	0.012**
Pseudo-R^2	.235	.237	.226	.228	.216	.214	.219	.219
N	1708	1708	1401	1401	793	793	430	430
Sociodemographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Access to broadband	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. Sociodemographic controls from 2011 census (for complete description, see Table 5.9 in the appendix). Electoral controls: change in the turnout in 2008 vs. 2006 elections, and in 2006 vs. 2001 elections. Spatial controls: longitude and dummy variable with a value of 0 for centre areas (Lazio and Abruzzo) and a value of 1 for south areas (Campania, Molise, Puglia, Basilicata, and Calabria). Access to broadband: data from 2012 at the municipality level, landline and mobile broadband combined. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

This result finds further confirmation in regression analysis in Table 5.6, in which the dependent variable is the change in turnout in 2013 elections compared to 2008 elections. Given the presence of extreme outliers in the dependent variable (see Figure 5.11 in the appendix), in line with previous analysis on turnout in the 2011 referendums, in Panel A I adopted linear regressions after excluding the outliers and clustering the standard error at the province level. In Panel B, I used median regressions with all the observations in the dependent variable. Besides the full set of socio-demographic, electoral, and spatial controls previously used, the models also control for access to landline and mobile broadband at the municipality level in 2012. This variable proves extremely relevant to control for the possibility that late-switchover towns could have had access to the new TV channels through the internet.

Results confirm significant and substantial effects of early switch to digital on turnout in the 2013 elections at each border segment. In the towns that moved to digital three years earlier, turnout dropped by 2-3 percentage points more than in the other towns. A three-year gap in the availability of new digital channels had a long-lasting effect on voters' participation in the post-digital 2013 national elections. This result confirms both assumptions about the demobilising effect of increased access to entertainment channels (H1) and the long-lasting effect of exposure to these channels (H3).

In Tables 5.7, I repeated a set of placebo tests to further assess the strength of these findings. In this case, regression coefficients in Columns 1 to 4 are all negative in line with the expectations that turnout should drop equally in central and southern areas, when comparing towns on both sides from the border. In addition, placebo tests with artificial borders (Columns 5 to 8) do not reveal substantial differences around artificial borders within early-switchover and late-switchover areas, in line with expectations.

Table 5.8 provides an additional placebo test by regressing the change in the turnout in pre-digital elections. The assumption, in this case, is that being a town on the west or east side of the border should not affect the change in the turnout in 2008 (vs 2006) elections, and in 2006 (vs. 2001) elections, since at that time all towns still had access to traditional analogue channels. Results from this additional placebo test confirm the theoretical expectation, by showing that no substantial effects on turnout occurred in the pre-digital elections in the centre-south part of Italy.

Table 5.7. Placebo tests on change in turnout in 2013 elections

	Centre regions only		South regions only		Placebo border West		Placebo border East	
	All towns	<30km	All towns	<30km	All towns	Half distance	All towns	Half distance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Switchover	-0.022	-0.006	-0.014	-0.028	-0.003	0.008	0.010	0.006
Clustered st. err (province)	0.013	0.011	0.009	0.011**				
St. error					0.005	0.006	0.005*	0.006
Sociodemo-graphic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral con-trols	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Access to broad-band	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Longitude	No	No	No	No	Yes	Yes	Yes	Yes
R^2	.279	.262	.339	.338	.329	.407	.229	.361
N	612	338	1049	435	839	417	822	447

Note. OLS regressions of change in turnout in 2011 referendums vs 2008 elections. OLS regressions excluding outliers. Centre regions: Lazio and Abruzzo. South regions: Campania, Molise, Puglia, Basilicata and Calabria. Sociodemographic and electoral controls: see note in Table 4. *** p < 0.01, ** p < 0.05, * p< 0.1.

Table 5.8. Placebo tests: effects of moving to digital on 2008 and 2006 elections

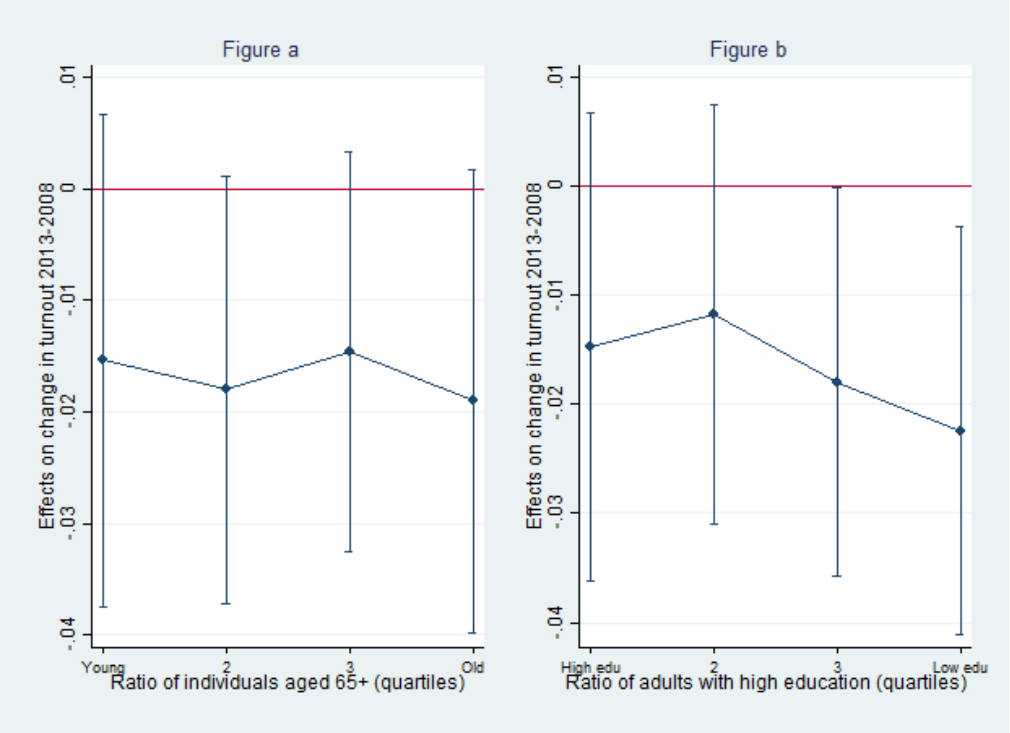
	Turnout 2008/2006		Turnout 2006/2001	
	Full sample	<30km	Full sample	<30km
	(1)	(2)	(3)	(4)
Switchover	0.010	0.004	-0.020	0.005
Clustered st. err. (prov-ince)	0.006*	0.004	0.025	0.024
Sociodemographic con-trols 2001	Yes	Yes	Yes	Yes
Spatial controls	Yes	Yes	Yes	Yes
R^2	.059	.064	.311	.322
N	1615	755	1661	767

*** p < 0.01, ** p < 0.05, * p< 0.1

Interaction analysis in Figure 5.10 partially confirms the patterns previously identified. Although the ratio of elderly people does not prove a relevant moderator of the effects of digital

television on turnout (Figure a), significant differences occur when towns are divided by education levels. Figure b reveals that within the towns with the highest ratio of less educated people (fourth quartile), turnout dropped by more than 2 percentage points in the towns that had early access to digital compared to those who had late access (for complete regression analysis, see Table 5.12 in the appendix).

Figure 5.10. Average marginal effect of switch to digital TV on change in turnout in 2013 elections by age and education



Note. Figure a: ratio of individuals aged 65-plus over the whole population (quartiles). Figure b: ratio of adults aged 25-64 with high school or university degree over the whole number of adults aged 25-64 (quartiles). 95% confidence intervals

After assessing the impact of digital TV on turnout, in the final step of the analysis I replicated the same regression models using the change in the vote share for Berlusconi's People of Liberty party (PDL) as the dependent variable. The results of this analysis show that digital TV did not have a significant effect on the vote share of Berlusconi's party, since no significant differences occurred between early-switchover and late-switchover towns at each border segment (see results in Table 5.13 in the appendix). The same lack of significant results occurs

when the change in the vote share for the Democratic party (PD) is introduced as a dependent variable.

In sum, the analysis in Study 2 confirms that early access to digital TV significantly reduced turnout in the 2013 elections, but did not affect vote share for Berlusconi's party. Thus, although results confirm a demobilising effect that lasts over time (H1 and H3), the hypothesised debiasing effect (H2) does not find empirical confirmation. In the following section, I will provide possible interpretations for why digital television did not seem to affect voting behaviour in both Study 1 and 2.

5.7. Discussion

The lack of influence of digital television on the vote share of Berlusconi's coalition could depend on several reasons. In Study 1, the first reason concerns the limited number of observations, especially in the control group of the province of Viterbo, which includes only 60 municipalities. Although the sign of regression coefficients suggests a negative correlation between switch to digital and support for the centre-right candidate in line with the expectations, the lack of statistical significance might depend on the fact that limited variation occurs within a limited sample.

The second reason concerns the specificity of regional elections. In these types of elections, citizens do not vote just for a coalition of parties, but also for a specific candidate that these parties support. Thus, the personality of the candidates can be extremely influential, and voters can support a candidate for several reasons that go beyond party affiliation. Strong candidates and heavily personalised campaigns, for example, can attract most of the attention and obscure the role of parties. In this sense, even if news content on traditional analogue television were biased towards Berlusconi's party and his coalition, the influence of this biased news on the vote for the Berlusconi coalition's candidate might have been limited, due to a weak link

between the candidate and the supporting coalition of parties. In this sense, television content might have had a marginal role in boosting support for the regional candidates in Lazio, thus we did not observe a significant drop in the vote share on either side of the switchover border.

This weak link between TV news and vote can partially explain also the mixed results from Study 2 on turnout in the 2011 referendums. Although one referendum consultation was clearly politicised, the content of slanted TV news might have simply ignored referendum issues and focuses instead on supporting Prime Minister Berlusconi and the ruling political parties. Indeed, evidence indicates that the public broadcasting service indirectly undermined the referendum campaign, simply by not covering the consultation in news programs.[50] Thus, if the starting level of news coverage on referendum issues is limited, reducing the exposure to news by expanding entertainment content should not have substantial effects. The impact of television might have been different if additional news channels had entered the market. However, this is not the case, as new digital channels in Italy mainly broadcast entertainment content.

The link between TV exposure and vote is clearly stronger in the 2013 national elections. In this case, citizens could vote directly for Berlusconi's party and for a coalition that was supporting Berlusconi as prime minister. Following the reasoning above, pro-Berlusconi slanted news should have had the largest effect in this electoral context. Two reasons, however, can explain the lack of empirical findings in Study 2 on voting behaviour in the 2013 national elections. A simple explanation concerns the fact that digital TV might have reduced the motivation to turnout at the elections among a group of citizens who were voting for different parties, and not necessarily for Berlusconi's party. Thus, a reduction in turnout would minimally

[50] See evidence quoted by Prada (2014: 195) and the official complaints directed from the Communication Authority, AGCOM, to RAI (AGCOM, press release, 1 June 2011).

affect the vote for a single party, due to the dispersion of these votes across the political spectrum.

A second explanation lies in the particular setting of Study 2, since both western and eastern regions had already switched to digital at the time of the elections. If we assume that digital television leads to a debiasing effect in the very short term – as suggested by Barone and colleagues' (2015) findings – Berlusconi's party vote share should have dropped *also* in the Eastern regions after completing the transition to digital. For this reason, we should not observe significant variation between western and eastern regions in the vote for Berlusconi's party in the 2013 elections. Yet, exposure to entertainment content might have had a long-lasting effect on voters' motivation to participate in the election. For this reason, we observe a significant drop in the turnout in early-switchover towns, even after completion of the digital transition. While a reduction in the exposure to slanted news might have immediately reduced the motivation of some Berlusconi's supporters to vote for him (a short-term debiasing effect), a prolonged exposure to entertainment TV content might have led to a subtler reduction in the motivation to turnout at the elections across a wider group of citizens who were supporting different parties (a long-term demobilising effect). The combination between these short-term and long-term effects can explain why findings from Study 2 indicate a persistent effect of digital television on turnout in the centre-south of Italy, but not a specific effect on voting behaviour.

Furthermore, the peculiarity of the 2013 national elections might also have blurred the impact of television on vote share. In these elections, both the centre-right and centre-left coalitions that had dominated Italian politics since at least the 2006 elections lost a large amount of votes[51] in favour of the Five-Star Movement, a new party that gained around 26 percent of

[51] The centre-right coalition that supported Berlusconi lost around 18 percentage points (moving from 46.8 percent of the votes in 2008 to 29.2 percent in 2013), while the centre-left coalition lost around 8 percentage points (moving from 37.6 percent of the votes in 2008 to 29.6 percent in 2013).

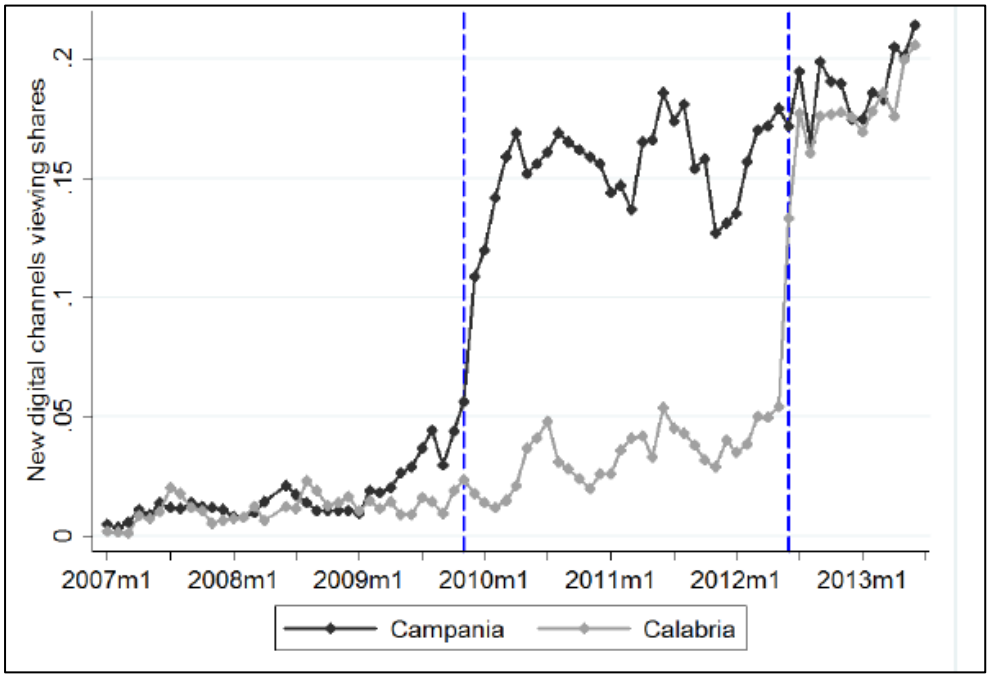
the votes as a first-time runner. The fact that this new party deliberately avoided television exposure as a campaign strategy, combined with a general loss of popularity for Berlusconi and his coalition might have reduced the persuasive effects of television in the 2013 national elections.

Lastly, it is worth mentioning that, although traditional analogue TV channels were not available after switchover deadlines, citizens could already receive new digital channels before these deadlines. This possibility leads to potential contamination of control areas, especially in the case of the towns closer to the border, in which 'spill-overs' might have taken place – i.e. citizens might have added a decoder to television sets in order to receive the same new digital channels that their neighbouring towns were already receiving. While this potential contamination around the border can explain the lack of results in Study 1 for the areas within 15km from the border between the province of Viterbo and the other provinces, on the other hand, it should not concern the validity of the estimates. On the contrary, it can be argued that in the absence of these spill-overs, the effects of the treatment should have been even *larger*, thus the estimates in both Study 1 and 2 can be seen as conservative estimates of the impact of digital television.

Furthermore, evidence in the centre-south of Italy indicates that only a few households exploited the possibility to access new digital channels before switchover deadlines, since the viewing share for digital channels increased significantly only after analogue TV was switched off for good. Figure 5.11 from Mastrorocco and Minale (2015) illustrates this scenario in the case of the neighbouring regions of Campania and Calabria. As the figure shows, the viewing share for new digital channels in Calabria jumped at the same level as in Campania immediately after the switchover. This sharp increase in viewing share indirectly supports the idea that digital TV might have had a very short-term debiasing effect, while the long-term demobilising

effect resulted from a prolonged gap in the exposure to the new channels, as clearly illustrated in the figure.

Figure 5.11. Digital channels viewing share around switchover deadlines in Campania and Calabria



Note. Figure by Mastrorocco and Minale (2015), elaboration of Auditel data. The figure plots monthly TV viewing shares during prime-time for new digital channels between 2007 and 2013.

5.7.1 Limitations and possible extensions

Besides the general limitations of ecological studies – i.e. the fact that we do not observe the assignment to the treatment directly – the models in both Study 1 and 2 suffer from the lack of data about general TV consumption. If substantial variation in the exposure to television occurs across towns, the introduction of digital TV should also have different effects across towns. For example, in households with heavy TV consumption, the sudden possibility to access an increased number of channels should have a larger impact than in households with low TV consumption. Although data for TV consumption at the municipality level do not exist, previous investigations indicate that consumption does not differ significantly across Italian regions

(Barone et al., 2015; Mastrorocco and Minale, 2015). Still, including data for average TV exposure at the regional level in further analysis should increase the robustness of the estimates.[52]

Additional missing data concern the use of other media, such as newspapers and the internet. A heterogeneous use of these media across regions might have blurred the effects of television, since towns with early access to digital television, for example, might have been exposed to a stronger bias by consuming more pro-Berlusconi newspapers. In further analyses, introducing data for newspaper circulation at the regional level should partially contribute to ruling out these possibilities. With regard to the internet, data on individual use of the internet are not available at different geographical levels. However, controlling for the availability of landline and mobile broadband at the municipality level in Study 2 contributes to addressing the concern that citizens might have substituted television with internet consumption.

Finally, the analyses in this chapter could be further improved by using additional data sources at the individual level. In particular, data from the 2011-2013 ITANES panel study and the regular Istat household surveys can contribute to identifying whether variation in voting behaviour exists among individuals living in areas with early or late access to digital television. Although the number of observations and the geographical composition of these sources of data are limited, empirical analysis of these datasets can improve the robustness of the findings presented in this chapter.

[52] The private company Auditel is the only body that provides viewing-share data for Italian television at the national and regional level (no data exist at the province and municipality level). The procedure to obtain these data is extremely complicated, and I did not manage to access them by the time I conduct the analyses in this chapter.

5.8. Conclusions

In this chapter, I explored the impact of television on voting behaviour and turnout in different referendum and electoral consultations in Italy. The recent introduction of digital television as a new transmission technology provided the chance to identify causal effects, by exploiting a quasi-random shock to exposure to new TV channels. Between 2008 and 2012, Italian television switched from traditional analogue channels to digital channels. Switchover deadlines were imposed by the European Union and were spatially heterogeneous and idiosyncratic. After switching to digital, the number of TV channels delivering mostly entertainment content increased dramatically.

Following recent analysis in the region of Piedmont by Barone and colleagues (2015), in Study 1 I explored the impact of digital television on the 2010 regional elections in Lazio. These elections took place in between switchover deadlines, since four provinces of Lazio moved to digital in 2009, while one province switched only in 2011. Results from a regression discontinuity design shows that in the towns that switched to digital before the elections, turnout dropped by 3-4 percentage points more than in the towns that had not moved to digital at the time of elections. In line with theoretical expectations, turnout did not drop both in the towns with the lowest ratio of elderly people and in the towns with the highest ratio of highly educated people.

In Study 2, I expanded the analysis to a broader area in the centre-south part of Italy, in which the West-coast regions of Lazio (except for the province of Viterbo) and Campania moved to digital in Autumn 2009, while the neighbouring regions of Abruzzo, Molise, Puglia, Basilicata, and Calabria switched to digital almost three years later in mid-2012. In this area, I tested whether early switch to digital affected, firstly, turnout in a wave of national referendums in June 2011, and, secondly, turnout and voting behaviour in the 2013 national elections. The analysis of the 2011 referendums indicates that access to new digital channels reduced turnout

in the referendums by 2 percentage points, although the estimates are sensitive to the specifications introduced in the models. When interactions are introduced in the analysis, results confirm that digital television had a larger effect in the towns with more elderly and less educated people. Within this group of towns, turnout dropped significantly more in areas that moved to digital before the referendums compared to areas that still had access to analogue channels at the time of the referendums.

Findings from Study 2 reveal that early access to digital had a significant, long-lasting effect also on electoral participation in the 2013 national elections. In the centre-south of Italy, turnout dropped by 2-3 percentage points more in the towns that moved to digital in 2009 compared to those that moved in 2012. This effect was larger within the towns with the highest ratio of less educated people. In line with recent studies documenting a long-lasting effect of access to commercial TV channels on vote (Durante et al., 2013), these findings show that a three-year gap in the availability of new digital channels affected electoral participation even after the transition to digital was completed.

Empirical analysis in both Study 1 and 2, however, did not show a significant impact of television on vote share for Berlusconi's party and the Berlusconi coalition's candidate. By increasing the availability of entertainment options, digital television should have reduced the exposure to pro-Berlusconi slanted news, thus reducing the vote share for his coalition. Contrary to expectations based on recent findings (Barone et al., 2015), the analysis did not confirm such an effect on vote. As explained in the discussion section, in Study 1 this lack of empirical support might depend either on statistical reasons related to the restricted number of observations, or on substantial reasons related to the peculiarity of regional elections, in which the personality of the candidates can trump the role of the supporting parties. In Study 2, possible explanations concern the peculiarity of the 2013 elections – in which Berlusconi's loss of pop-

ularity and the rise of the new M5S party might have reduced the persuasive effects of television – in addition to the fact that the transition to digital was already completed by the time of the elections. In this case, the idea is that digital television's shock to slanted TV news might have had a short-term debiasing effect that occurred immediately after switching to digital. Thus, Berlusconi's vote share dropped in both western and eastern regions after switchover deadlines, with the consequence that no significant variation across regions occurred at the time of the elections.

On the other hand, the fact that digital TV still had an impact on turnout even after the completion of the digital transition suggests that prolonged exposure to entertainment media content can have incremental effects on electoral participation that last over time. In line with Prior's (2007) investigation on the impact of cable TV and the internet in the U.S. media market, the effect of digital television on turnout can be explained by a mechanism of indirect demobilisation. By expanding the availability of TV channels, digital television reduced the inadvertent exposure to news that characterised the former low-choice media environment, and provided more suitable content for an audience that preferred entertainment. As a result, the motivation to turnout at the elections decreased in this part of the electorate, especially among elderly people and those with low education. Further research on additional datasets could shed new light on these mechanisms by analysing the impact of television on vote at the individual level.

Appendix

Table 5.9. Control variables used in regression models

	Study 1: 2010 elections in Lazio (2001 census data)	**Study 2:** 2011 referendums (2011 census data)	**Study 2:** 2013 elections (2011 census data)
Population (log)	X	X	X
Density (log)	X	X	X
Number of families	X	X	X
Male/female ratio	X	X	X
Ratio of individuals aged 65+	X	X	X
Ratio of families with elderly people living alone	X	X	X
Number of foreigners	X	X	X
Ratio of people with high school or university degree	X	X	X
Ratio of illiterate people	X	X	X
Average income	X		
Index of manufacturing	X	X	X
Unemployment rate	X	X	X
Availability of broadband (landline and mobile) (2012 data)			X
Longitude		X	X
Centre vs. South dummy		X	X
Electoral controls: turnout 2008 vs 2006, turnout 2006 vs 2001		X	X

Table 5.10. Effect of switchover to digital TV on change in turnout in 2010 regional elections in Lazio (interactions)

	Elderly	Education
Switchover	-0.031 (0.015)**	-0.025 (0.017)
Ref. cat. (1st quartile)		
2nd quartile	0.015 (0.017)	0.017 (0.019)
3rd quartile	0.016 (0.017)	0.006 (0.017)
4th quartile	0.033 (0.017)*	0.011 (0.018)
Ref. switch. * 1st quart.		
Switchover * 2nd quartile	-0.017 (0.018)	-0.017 (0.020)
Switchover * 3rd quartile	-0.007 (0.019)	-0.018 (0.019)
Switchover * 4th quartile	-0.011 (0.019)	-0.024 (0.020)
Linear distance	Yes	Yes
Sociodemographic controls	Yes	Yes
R2	.279	.274
N	356	1660

Note. OLS regressions, full sample, controlling for linear distance. Elderly: ratio of individuals aged 65 or plus over the whole population. Quartiles from lowest ratio of elderly people (1st quartile) to highest ratio (4th quartile). Education: ratio of adults aged 25-64 with high school or university degree over the whole number of adults aged 25-64. Quartiles from highest ratio of highly educated people (1st quartile) to lowest ratio (4th quartile). Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5.11. Effect of switchover to digital TV on turnout in 2011 referendums (interactions)

	Elderly	Education
Switchover	-0.006 (0.013)	-0.020 (0.016)
Ref. cat. (1st quartile)		
2nd quartile	0.005 (0.005)	-0.014 (0.007)*
3rd quartile	0.014 (0.005)***	-0.019 (0.009)*
4th quartile	0.033 (0.008)***	-0.030 (0.010)***
Ref. switch. * 1st quart.		
Switchover * 2nd quartile	-0.009 (0.010)	-0.001 (0.010)
Switchover * 3rd quartile	-0.018 (0.006)***	-0.008 (0.012)
Switchover * 4th quartile	-0.028 (0.010)**	-0.017 (0.012)
Linear distance	Yes	Yes
Sociodemographic controls	Yes	Yes
Electoral controls	Yes	Yes
Spatial controls	Yes	Yes
R2	.353	.351
N	1660	1660

Note. OLS regressions with outliers excluded, full sample, controlling for linear distance. Elderly: ratio of individuals aged 65-plus over the whole population. Quartiles from lowest ratio of elderly people (1st quartile) to highest ratio (4th quartile). Education: ratio of adults aged 25-64 with high school or university degree over the whole number of adults aged 25-64. Quartiles from highest ratio of highly educated people (1st quartile) to lowest ratio (4th quartile). Standard errors clustered at the province level in parentheses.

*** p < 0.01, ** p < 0.05, * p< 0.1

Table 5.12. Effect of switchover to digital TV on turnout in 2013 elections (interactions)

	Elderly	Education
Switchover	-0.015 (0.011)	-0.015 (0.010)
Ref. cat. (1st quartile)		
2nd quartile	0.001 (0.005)	-0.012 (0.004)***
3rd quartile	-0.005 (0.003)	-0.016 (0.005)***
4th quartile	-0.008 (0.005)	-0.014 (0.006)**
Ref. switch. * 1st quart.		
Switchover * 2nd quartile	-0.003 (0.007)	0.003 (0.006)
Switchover * 3rd quartile	0.001 (0.007)	-0.003 (0.007)
Switchover * 4th quartile	-0.004 (0.009)	-0.008 (0.008)
Linear distance	Yes	Yes
Sociodemographic controls	Yes	Yes
Electoral controls	Yes	Yes
Access to broadband	Yes	Yes
Spatial controls	Yes	Yes
R2	.272	.281
N	1661	1661

Note. OLS regressions with outliers excluded, full sample, controlling for linear distance. Elderly: ratio of individuals aged 65-plus over the whole population. Quartiles from lowest ratio of elderly people (1st quartile) to highest ratio (4th quartile). Education: ratio of adults aged 25-64 with high school or university degree over the whole number of adults aged 25-64. Quartiles from highest ratio of highly educated people (1st quartile) to lowest ratio (4th quartile). Standard errors clustered at the province level in parentheses.

*** p < 0.01, ** p < 0.05, * p< 0.1

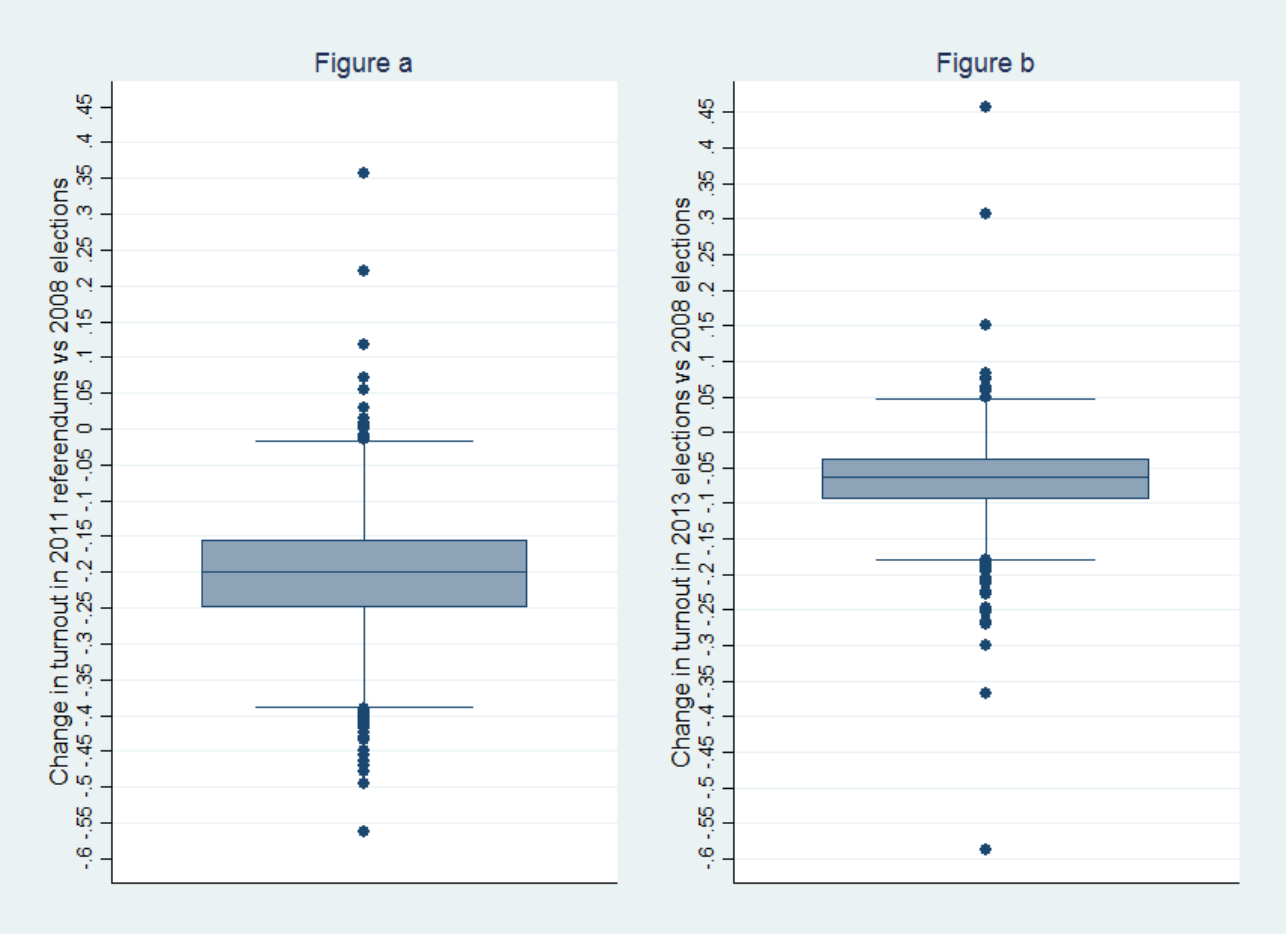
Table 5.13. Effect of switchover to digital television on votes gained/lost by PDL in 2013

	Full sample		<60km		<30km		<15km	
	Linear distance (1)	Cubic distance (2)	Linear distance (3)	Cubic distance (4)	Linear distance (5)	Cubic distance (6)	Linear distance (7)	Cubic distance (8)
Panel A. OLS regressions (outliers excluded)								
Switchover	-0.006	-0.011	-0.002	-0.003	0.013	-0.003	-0.001	0.052
Clustered st. err. (province)	0.026	0.031	0.031	0.035	0.032	0.034	0.036	0.050
R^2	.125	.127	.123	.123	.171	.173	.197	.211
N	1644	1644	1350	1350	763	763	414	414
Panel B. Median regressions								
Switchover	-0.007	-0.007	0.001	0.002	0.035	0.021	0.008	0.056
Robust st. err.	0.011	0.013	0.015	0.020	0.019*	0.025	0.025	0.037
Pseudo-R^2	.072	.075	.071	.071	.109	.110	.125	.134
N	1708	1708	1401	1401	793	793	430	430
Sociodemographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Access to broadband	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spatial controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note. Dependent variable: percentage of votes gained/lost by PDL in 2013 vs 2008. Sociodemographic controls from 2011 census (for complete description, see Table 5.9 in the appendix). Electoral controls: change in the vote share for PDL in 2008 vs. Forza Italia in 2006 elections, vote share for Forza Italia in 2006 vs. 2001. Spatial controls: longitude and dummy variable with a value of 0 for central areas (Lazio and Abruzzo) and a value of 1 for southern areas (Campania, Molise, Puglia, Basilicata, and Calabria). Access to broadband: data from 2012 at the municipality level, landline and mobile broadband combined.

*** p < 0.01, ** p < 0.05, * p< 0.1

Figure 5.12. Distribution of dependent variables: Change in the turnout in 2011 referendums (a) and 2013 elections (b)



6.

Conclusions

In the preceding chapters, I have presented different studies on the effects of information on attitudes and voting behaviour. With the umbrella-term 'information' I referred to three different elements: 1) issue-based arguments, i.e. arguments supporting the pros and cons of a referendum proposal in relation to different issues (Chapters 2 and 3); 2) politicians' campaign statements (Chapter 4); and 3) availability of media content, including news and entertainment content (Chapter 5). The context of analysis included three case studies – the 2014 referendum for independence for Scotland (Chapters 2 and 3), the 2015 general election in the UK (Chapter 4), and a series of electoral and referendum consultations that took place between 2010 and 2013 in Italy (Chapter 5). Despite these differences in both types of information and cases of analysis, the findings reveal that citizens are far from immune to information stimuli during referendums and political elections. Indeed, the results show that in these contexts information does affect citizens' attitudes and their voting behaviour.

The mechanisms underlying these effects extend beyond the basic mechanisms of direct persuasion that were theorised in the early studies on media and campaign effects. One of the reasons for this complexity lies in the recently acquired active role of citizens as information consumers. In the current information-abundant media environment, citizens are empowered by extended possibilities to actively *choose* what type of content they are exposed to. While, on the supply side, the increased availability of both information sources and media content

might lead to a new era of minimal effects (Bennet and Iyengar, 2008), on the citizens' side, it boosts the role of individuals as active consumers. Thus, individual moderating factors acquire crucial relevance in interpreting the influence of information. As the analysis in these chapters has shown, elements such as strength of attitudes, economic expectations, national identity, and education levels can substantially change the impact of the same messages on public opinion and voting behaviour. In this sense, research from political psychology on the micro-foundations of the mechanisms of information processing gains increased relevance in an environment in which the fragmentation of the media has tipped the balance in favour of citizens.

At the methodological level, the studies presented in this thesis attempted to address the long-standing problems of identifying causal effects of information due to citizens' self-selection into media exposure. Clearly, when the possibility to select information content increases, self-selection issues also become more salient. To address these concerns, the analysis relied on a combination of methods: experimental designs (online and lab experiments), panel surveys, and regression discontinuity designs based on quasi-natural experiments. The combination of these methods contributes to addressing not only the issue of causality, but also issues of external validity. From a methodological point of view, the difficulties related to pinning down information effects represent a stimulus for further research to develop more advanced methods and innovative design strategies.

The findings presented in this thesis not only provide a contribution to research, but also open new research questions. In Chapter 2, the analysis of an original lab-experiment, a follow-up survey and a nationally representative panel conducted during the campaign for the 2014 Scottish independence referendum provides three major sets of findings. Firstly, the analysis on the individual level confirms that the main mechanisms of motivated reasoning apply also in a referendum campaign and even in the absence of explicit party cues, since the participants displayed an attitude congruence bias in the evaluation of the evidence, a confirmation bias in

the selection of the texts, and a disconfirmation bias in response to counter-attitudinal arguments. Secondly, the results from a comparison between groups reveal that, contrary to previous findings, provision of information did not lead to uniform patterns of attitude change, since attitudes either polarised or depolarised depending on the moderating elements of attitude relevance and decision level. While undecided voters and those who cared less about Scottish independence polarised after reading a mixed set of arguments, decided voters and those who cared more about independence depolarised, since they moderated their attitudes on both sides of the campaign. These effects occurred regardless of the possibility to select the information material. Thirdly, the analysis of individual attitude change over time confirms that, as the campaign approached the referendum day, participants developed stronger attitudes in line with their priors, thus leading to over-time attitude polarisation. However, while a polarisation trend took place especially among low-relevance and undecided participants as result of a decision-making process, the depolarisation pattern identified in the experimental setting among high-relevance and decided voters vanished over time, since these voters did not moderate their attitudes by the time the referendum took place.

The findings from Chapter 2 open up a series of research questions and possible future research avenues. For example, the lack of significant differences between selection and non-selection conditions, in addition to the fact that the participants displayed a confirmation bias only when they were prompted to report their attitudes before reading a set of texts, suggests the need for further empirical analysis on the mechanism of selection of information. Can the often documented confirmation bias in the literature be partially a 'by-product' of specific within-subject designs? Do individuals tend to select information more even-handedly in contexts of real decision-making, and especially when they are undecided about specific voting decisions? The unexpected finding of attitude depolarisation among highly-engaged voters also

encourages further inquiry in order to test whether this result represents either an isolated finding or a more general effect of provision of balanced information in contexts of issue-voting. Research on processes of opinion formation over time can also contribute to testing whether these trends of polarisation and depolarisation last 'outside the lab'. Furthermore, the discussion in Chapter 2 calls for a less normatively charged interpretation of the theory of motivated reasoning, when the consequences of information processing for decision making are taken into account. Following the idea that motivated voters do not necessarily need to be biased, it is argued that voters can rationally select and evaluate information in line with their priors, and that even attitude polarisation should be seen under a more positive light.

The analysis in Chapter 3 shifts the focus of Chapter 2 to the effects of issue-based arguments on voting behaviour within the same context of the campaign for the Scottish independence referendum. The findings reveal that information significantly influenced voting preferences, but this effect crucially depends on the share of undecided voters, and the asymmetrical structure of vote choice in a referendum, in which a riskier 'change option' is generally opposed to a safer 'status quo option'. The results from a lab-experiment show that the participants' support for Scottish independence increased after reading a mixed set of arguments, in comparison to a condition of no information. Data from a follow-up survey reveal that this result found further confirmation in the increase of actual Yes votes in the referendum. Furthermore, findings show that personal economic expectations proved a relevant moderator of the effect of information on vote, since the support for independence significantly increased only among those who did not expect future economic gains. These results confirm that cost-benefit calculations can play an important role especially when voters have to choose between the uncertainty of a Yes for a change and the relative certainty of a No for the status quo.

The results from Chapter 3 lead to the question of whether campaign messages have *general* asymmetrical effects of vote in referendum campaigns. Does information tend to benefit

the change option by reducing the uncertainties related to abandoning the status quo? In addition, these findings encourage further investigation into whether prospect theory can provide a useful theoretical framework to interpret information effects in direct democratic contexts. Do risk-based calculations prove a significant moderator of individual reactions to campaign arguments? Do voters respond differently to information, depending on whether 'risky' voting decisions are made either in a domain of 'gains' or 'losses'?

Chapter 4 explores a different aspect of political campaigns. In this case, the focus is on negative messages, i.e. specific messages in which party leaders directly attack their opponents in order to steer away voters from them. The findings from this chapter reveal not only that attack messages affect voting behaviour, but also that the same campaign strategy can lead to opposite effects depending on key individual traits, such as national identity. In the context of the 2015 UK general elections, findings from experimental and panel data highlight that both exposure to attack statements and perceived negativity increased support for Labour and the Conservatives among British voters, and, at the same time, increased support for the SNP among Scottish voters. In this sense, negativity polarised the electorate along identity lines, since it widened the gap between SNP supporters, on the one hand, and Labour and Conservative supporters, on the other. In addition, experimental results confirm previous findings documenting that negativity affects mainly parties that are ideologically close – in this case, the Labour party and the SNP.

The crucial role of national identity feelings and the specificity of the 2015 UK general elections in Scotland, however, open up a series of questions that the experimental design adopted in Chapter 4 cannot answer. To what extent does the impact of negativity change depending on both the types of arguments and the specific issues mentioned in the campaign? Does negative campaigning lead to a polarising effect only in the case of highly salient issues, such as Scottish independence? At the theoretical level, the findings from this chapter reveal

that negativity can affect voting behaviour through a mechanism of activating voters' sense of in-group membership. The novelty of this mechanism stimulates further investigation into whether a sense of in-group membership based not only on national identity feelings, but also on other elements – such as ethnic or gender differences – prove a crucial mediator of negative campaigning. Do parties steer away voters from them when they (inadvertently) attack voters' in-group identity? Under which circumstances do group identity feelings trump party identification to the extent that negative campaigning proves counter-productive?

In Chapter 5, I extended the analysis to a more macro level, by focussing on the impact of television on vote in Italy. In this case, the spatially-heterogeneous introduction of digital television – a new transmission technology that increased the number of available TV channels – provided the chance to identify causal effects of TV exposure on voting behaviour. Building on a previous investigation on the 2012 regional elections in the region of Piedmont (Barone et al., 2015), I extended the analysis of the impact of digital television on three additional outcomes: 1) the 2010 regional elections in Lazio; 2) a series of national referendums that took place in June 2011, and; 3) the 2013 national elections. The analysis from a regression discontinuity design in the region of Lazio reveals that in the towns that switched to digital TV before the elections, turnout dropped by 3-4 percentage points more than in the towns that had not moved to digital at the time of elections. In line with theoretical expectations, turnout did not drop both in the towns with the lowest ratio of elderly people and in the towns with the highest ratio of highly-educated people. Secondly, extended investigation in the centre-south of Italy shows that access to new digital channels reduced turnout also in the 2011 referendum consultations, although in this case the estimates are sensitive to the specifications introduced in the models. When interactions are introduced in the analysis, results confirm that access to digital television reduced turnout especially in the towns with more elderly and less educated people. Lastly, findings in Chapter 5 reveal that early access to digital television had a significant, long-

lasting effect also on electoral participation in the 2013 national elections. In the centre-south of Italy, turnout dropped by 2-3 percentage points more in the towns that moved to digital in 2009 compared to the towns that moved in 2012. This effect was larger within the towns with the highest ratio of less educated people. Contrary to previous findings, the analysis of both the 2010 regional elections in Lazio and the 2013 national elections did not confirm a 'debiasing' effect of television, since access to digital channels did not significantly influence vote share for Berlusconi's party and Berlusconi's coalition candidate.

The implications of these findings extend beyond the case of television. Results from Chapter 5 trigger further research questions concerning, for example, the extent to which the increased availability of both news and entertainment content in the current media environment affects voting behaviour. As research in the U.S. has shown (Prior, 2007), a high-choice media environment can polarise the electorate by reducing the motivation of those who are less interested in politics to turnout at the elections, and leaving the electoral pitch mostly to committed and already polarised voters. A general question, therefore, concerns the extent to which these dynamics apply also in other European countries with different media systems. If increased choice allows citizens to simultaneously find and to avoid information more easily, what are the consequences of expanded media choice on electoral participation? Lastly, it is worth raising the question of whether the findings about the effect of digital television in Italy can be transferred to other media, such as the internet. Can increased consumption of information through the internet – that is, the medium of choice *par excellence* – increase knowledge gaps in the electorate, and lead to further radicalisation of the electorate?

As this list of questions suggests, there is ample scope for further research on how information affects public opinion and voting behaviour. In a complex media environment in which citizens become active consumers of information, identifying these effects proves both a theoretical and a methodological challenge for research. As the findings from this thesis show,

information effects might have become subtler, but not necessarily less powerful, when contextual and individual moderating variables are taken into account. Understanding the mechanisms underlying these effects proves a necessary prerequisite for understanding how an informed citizenry can lead to a healthy democratic society.

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