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Title: ***Agenda-setting dynamics during the campaign period***

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Agenda-setting dynamics during the campaign period

1 Introduction

Previous research has often considered the media to serve as a powerful agenda-setter during election campaigns shaping voters' perceptions of the decision-making context in fundamental ways (Cohen 1963; Funkhouser 1973; McCombs, Shaw 1972; Weaver et al. 1981). The mass media not only reach a vast share of the electorate, they often are even so omnipresent in daily life that voters hardly can escape from exposure to the most salient mass media messages (McCombs 2012). Evidence of the mass media's agenda-setting capacity has accumulated over decades (Dearing, Rogers 1996; Eichhorn 1996; Maurer 2010; McCombs 2014) showing that high levels of news media coverage focussing on an issue are associated with high levels of the public concern, which, in turn, may have an impact on election results (Budge, Farlie 1983; Petrocik 1996). Taken to extremes, this influence of the media in defining public priorities implies that in particular in close races the media may play a pivotal role by directing the marginal vote in one rather than the other direction.

Other research, however, suggests that the media's influence is narrowly limited due to a number of factors (Dalton et al. 1998; Walgrave, van Aelst 2006; Walgrave, Soroka, and Nuytemans 2008). One such limiting factor is voters' memory. Previous studies have demonstrated that agenda-setting effects may often be very short-lived (Atwater, Salwen, and Anderson 1985; Gehrau 2014; Iyengar, Kinder 1987: 24-26; Selb 2003; Watt, Mazza, and Snyder 1993). This implies that coverage may only have an impact on the vote when shifts in the media's agenda occur shortly before election day.

A second limiting factor of the mass media's influence of the media's agenda-setting power are the political actors who aim to influence the public agenda during election campaigns. During the campaign period, the political parties increase their advertising efforts and try to manipulate the issue salience among the public by emphasizing favourable issues (Petrocik 1996; Simon 2002). As a consequence, rather than being "'blown about' by the political winds of the times" (Berelson, Lazarsfeld, and McPhee 1954: 139), voters during campaigns may face rather familiar symbolic issues that are suitable to activate latent supporters (Petrocik 1996; Walgrave, van Aelst 2006). Thus, voters may learn about the most important issues rather from the campaigns run by the parties than from the media.

Finally, a third limiting factor is the structure of the media system. The notion of one common agenda appears less convincing the more "media institutions are changing such that mass pro-

duction is less mass“ (Chaffee, Metzger 2001: 369). Specifically, previous research has argued that the rise of new media and the increasing fragmentation of the audience may render agenda-setting effects “less sweeping” (Iyengar, Kinder 2010: 144) as countervailing effects in different sub-audiences may cancel each other out and the chances to escape from politics altogether grow (Prior 2007). Thus, given the rise in fragmentation of campaign audiences, agenda-setting effects might increasingly be confined to subgroups of the voter population.

Taking into account evidence in favour of the mass media's agenda-setting power as well as the limiting factors, a number of specific research questions about agenda-setting dynamics during the campaign period arise: (1) Do higher levels of issue coverage lead to an increase in public concern about the issue? (2) How long-lasting are such agenda-setting effects? (3) Can the parties effectively bypass the media through advertising and directly influence public concern about issues? (4) How fragmented is the agenda-setting process, i.e., to what extent are agenda-setting effects limited to specific news audiences? By addressing these questions, the study aims to provide an enhanced understanding of how the information flow during election campaigns affects the formation the public's priorities at elections.

To examine these research questions, the study focusses on the 2009 and the 2013 German federal election campaigns. The German campaign information environment is marked by strong legal restrictions on campaign advertisement (Kaid, Holtz-Bacha 2006) and an increasing proliferation of information sources (Schulz 2005). Over past decades, private broadcasters and online media have emerged supplementing, but possibly also substituting the traditionally dominant mass media such as public-service television and newspapers. So far, however, it is not clear whether parties are able to bypass the media and shape the public agenda directly given the restrictions on advertising and how the increasing media fragmentation might affect the agenda-setting process. Apart from this general background, the two campaigns were very similar with regard to election-specific features such as the length of the campaign, campaign spending (Krewel, Schmitt-Beck, and Wolsing 2011; Krewel 2014; Tenscher 2012), the nature of party competition, the features of the chancellor candidates candidates (Rosar, Hoffmann 2015), and the long-term issue agenda (Giebler, Aiko 2015: 14). Therefore, the campaigns allow for an assessment of the mass media's agenda-setting power that is typical for contemporary German federal elections.

The study combines voter survey data with contextual data about the media news coverage and campaign advertisements. Specifically, the voter survey data comes from two rolling-cross-section studies (Rattinger et al. 2013; Rattinger et al. 2014) that were conducted as part of the German Longitudinal Election Study (GLES) during the run-up to the 2009 and the

2013 election. The content analyses data cover a broad range of different news sources, including public-service and private television news, national quality newspapers, the most important national tabloid as well as local newspapers and online news. Content analyses of the main evening television news (Rattinger et al. 2015a; Rattinger et al. 2015b) and the national newspapers (Rattinger et al. 2012; Rattinger et al. 2015c) were conducted by human-coding as part of the GLES project. Using a dictionary-based computerized coding, in addition, the content of local newspapers and online news was coded by the author to capture further aspects of the increasingly complex news environment. Furthermore, the campaign posters and TV spots by the political parties were coded manually by the author to evaluate the impact of campaign advertisement on the public agenda.

The chapter is structured as follows: First, the agenda-setting process is conceptualized as an interaction between voters' cognitive foundations and the structure of the campaign information environment and a set of testable hypotheses is derived based on previous research. Then, the German campaign information environment and the German federal campaigns are described. Next, information about the data and methods used to test the hypotheses are provided. After visually exploring the dynamics of the public agenda during the two election campaigns, the hypotheses are assessed. Finally, I summarize the key findings of the study and discuss the mass media's agenda-setting power and the role of limiting factors in the context of the German election campaigns.

2 Theory and hypotheses

Agenda-setting can be thought of as an interaction between voters' psychology and the campaign information environment. For this reason, two theoretical aspects need to be addressed to derive hypotheses about the agenda-setting dynamics during the campaign period: the *underlying cognitive mechanisms* behind agenda-setting effects on the one hand and the *structure of the campaign information environment* on the other. To learn about the cognitive foundations of agenda-setting is crucial to form expectations about how agenda-setting effects arise and how long they may last. In addition, the structure of the campaign information environment is important as the fragmentation of the media system may render agenda-setting effects ineffective and as it determines the chances of the political parties to bypass the media's logic and to serve as an agenda-setter instead.

2.1 Cognitive foundations of agenda-setting effects

While earlier agenda-setting research has been rather agnostic about theorizing the cognitive mechanisms, recent research has shown an heightened interest in the psychological foundations of agenda-setting effects (Bulkow, Urban, and Schweiger 2013; McCombs, Stroud 2014; Pingree, Stoycheff 2013; Takeshita 2006). Most notably, this research has established the distinction between two different types of agenda-setting by reinterpreting earlier research in the light of broader theories about information-processing (Eagly, Chaiken 1993; Petty, Cacioppo 1986). The two types of agenda-setting effects I will refer to as *agenda-cueing* and *agenda-reasoning* (McCombs, Stroud 2014; Pingree, Stoycheff 2013) in the following.

The first type, agenda-cueing, is thought to be the result of a peripheral mode of information-processing (Bulkow, Urban, and Schweiger 2013; McCombs, Stroud 2014). Peripheral processing involves that voters—instead of closely examining the message's content—draw inferences about the importance of issues based on presentation cues such as the lead position or the volume of coverage (Iyengar, Kinder 1987) or heuristics such as the accessibility of considerations (Iyengar 1990). Drawing these types of inferences typically does not require much cognitive effort. Due to the rather superficial and effortless mode of processing, however, agenda-cueing effects are rather short-lived and rapidly decay over time as the information does not get well integrated into voters' memory and quickly vanishes from the voters' mind.

Agenda-reasoning, in contrast, involves more deliberative and systematic processing of the message content (Bulkow, Urban, and Schweiger 2013; McCombs, Stroud 2014). Agenda-reasoning implies that voters thoughtfully *learn* from the media about the importance current political issues (Rössler 1999: 17-18). For this purpose, importance is judged on the basis of arguments about the relevance of issues rather than on the grounds of the mere frequency and recency of message exposure. This means, for instance, that highly prominent news reports which carry the message that a specific problem is not very relevant any longer should decrease rather than increase in public concern. This phenomenon has also become known as agenda-deflating (Schönbach, Semetko 1992). As agenda-reasoning requires that the message content is processed thoroughly, more cognitive effort is needed. Therefore this type agenda-setting may be less common or confined only to highly involved and sophisticated voters (Bulkow, Urban, and Schweiger 2013; Miller, Krosnick 2000). At the same time, however, given the more deliberative and more effortful mode of processing, agenda-reasoning may produce longer lasting effects as the learned information becomes more thoroughly stored in memory.

Judging from the empirical findings of existing observational studies, it seems that short-term agenda-cueing effects are predominant. For instance, according to Selb (2003), who studied agenda-setting in the context of the 1999 electoral campaign in the canton of Zurich, effects of coverage on issue salience decay quickly within a couple of days and after that turn out to be no longer significant. In line with this finding, Gehrau and colleagues (2014) studying agenda-setting effects in the German context over a much longer time frame find as well effects that are for most part limited to the week of exposure. Thus, based on these findings from previous research, it seems reasonable to expect that agenda-cueing is the main mechanism behind agenda-setting effects. As agenda-cueing depends on the recency of exposure, rather than the message content, the following hypothesis can be derived:

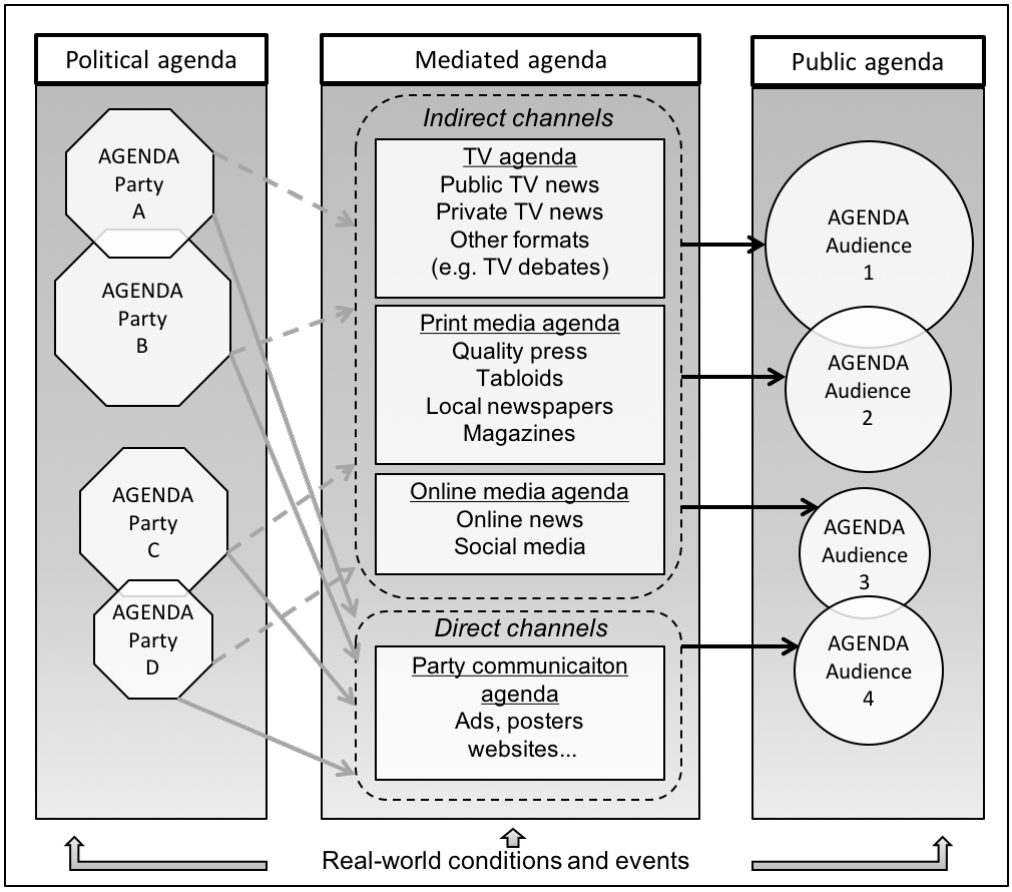
Hypothesis 1: The *more recently* voters have become exposed to news coverage about an issue, the more the public concern about an issue rises.

This hypothesis implies that the more agenda-setting effects will decay over time as information evades form voters' memory. As a consequence, only information that is provided shortly before the election is likely to affect voters' final decision.

2.2 The structure of the campaign information environment

An implicit underlying assumption of classical agenda-setting theory is that there is essentially *one* national agenda and that this agenda is constructed and defined by the mass media (McCombs 2014). This notion is supported by general findings: First, journalists of different news organization have been found to share common professional norms and selection criteria which increase the consistency across outlets (Weischenberg, Malik, and Scholl 2006a,2006b; Willnat, Weaver 2014). Second, consistency is further enhanced through processes of intermedia agenda-setting where highly renowned news organizations, such as the New York Times, for instance, set the agenda for other media (Golan 2006; Lopez-Escobar, Llamas, and McCombs 1998). And, in fact, previous research has found that there often is a common national mass media agenda across different outlets, even in national contexts with a language divide that may appear particularly prone to agenda fragmentation (Soroka 2002: ch. 3).

Figure 1: A model of the mediated agenda in a complex information environment



However, the information environment during election campaigns may be more complex than basic agenda-setting theory suggests (Dalton et al. 1998). Most notably, the assumption of one national agenda ignores any influence of the the competing parties trying to spread their own agenda in order to maximize votes (Petrocik 1996; Simon 2002; Vavreck 2009) as well as the increasing fragmentation of the media system and the audience (Bennett, Iyengar 2008; Iyengar, Kinder 2010: Epilogue; Prior 2007). To incorporate these arguments, Figure 1 presents a more complex model of the campaign information environment that takes into account the direct channels of party communication as well as the fragmentation of the media landscape that may lead to the segmentation of the public into several sub-audiences.

As shown in **Fehler! Verweisquelle konnte nicht gefunden werden.** on the left hand side, each of the competing parties (which may vary in size and thus campaign resources) pursues its own political agenda, which may overlap to some extent with that of other parties such as potential coalition partners or parties from the same ideological camp. The political agenda, for instance, as formulated in the party manifesto, becomes translated into an agenda that is

mediated through direct channels of party communications (e.g. televised advertisements) over that the parties exert direct control (solid grey arrows).[1] The parties may strategically choose which elements of their political agenda, they put up front in their campaigns in order to maximize votes (Simon 2002). Most notably, previous research has found that parties tend to focus on rather long-standing symbolic issues that are suitable to activate latent partisans (Petrocik 1996; Walgrave, van Aelst 2006). When voters that become exposed to the parties' mediated agenda, they may draw inferences from the campaign advertisement about the importance of political issues, similar as from the media coverage. Stated as a hypothesis, it follows:

Hypothesis 2: The more voters are exposed to political issues emphasized by the political parties in their campaign advertisement, the more they become concerned about the issue.

With regard to media fragmentation, previous research argued that the ever-growing complexity of the media system and the proliferation new information sources may increasingly undermine the credibility of the assumption of one common agenda and instead is likely to increasingly lead to divergent agendas among the public (Bennett, Iyengar 2008; Iyengar, Kinder 2010; Prior 2007). Not only has the expansion of entertainment-oriented programs and formats following the rise of private broadcasting and cable television has allowed many voters to increasingly opt out of exposure to political content altogether (Prior 2007). Also, the rise of opinionated niche news (Iyengar, Hahn 2009; Stroud 2011) and in particular online media that allow for high selectivity suggests that at least some of the new outlets may significantly diverge with respect to content allowing different audiences to choose information based on their personal interests and priorities. Similarly, as opting out of political information, this self-selection into political issues, is likely to rather reinforce pre-existing priorities rather than changing them. Based on these arguments, the following hypothesis can be derived:

[1] The parties may as well reach out to the voters indirectly by influencing the mass media coverage (dashed grey arrows). However, in this case the party agenda is filtered through the selection criteria by the mass media like other incoming information (e.g. from real-world conditions and events). As the parties do not exert direct control over the reporting, this conforms with the assumption of one national agenda constructed by the media. As voters may often be unable to assess from whom the media messages initially originated, the indirect influence of the parties through the mass media is here attributed to the mass media rather than to the parties.

Hypothesis 3: Voters exposed to the more traditional mass media (e.g. public television and local newspapers) are more prone to agenda-setting effects than voters who are exposed to entertainment-oriented information sources (e.g. private television and tabloids) or rather opinionated sources that allow for high selectivity (e.g. quality press and online media).

This hypothesis implies that to the extent that voters choose entertainment-oriented or highly selective information sources over the traditional mass media, the more likely voters are to vote based on divergent issue agendas.

2.3 Summarizing expectations

Overall based on previous research the expectation for the analyses is that the media can raise public concern about political issues, but that the media's influence is limited by a number of factors. These factors include on the one hand voters' memory, on the other hand they also include the campaign efforts by the political parties and the structure of the media system. According to the agenda-cueing hypothesis, agenda-setting effects are expected to dissipate rather quickly, so that shifts in the media agenda might only be influential late in the campaign. The hypothesis about the role of the parties suggests that parties may eventually be successful to bypass the media and to reach out to voters directly. Finally, according to the media fragmentation hypothesis, not all media are equally likely to set the agenda as some media may be more strictly entertainment-oriented, featuring only little political content, or may encourage voters to select in based on their pre-existing issue priorities. The analyses will assess to what extent and which of these these limiting factors are present and relevant in the context of the 2009 and the 2013 German federal election campaigns.

3 The campaign information environment of the 2009 and 2013 German federal elections

The German campaign information environment is marked by strong legal restrictions on campaign advertisement (Holtz-Bacha, Kaid 2006) and an increasing proliferation of information sources (Schulz 2005). Legal regulations of advertisement pertain to the (1) official campaign period, (2) the volume of advertising and (3) its content. Specifically, campaign posters are allowed only during the last two months and televised ads can be aired only during the last four weeks before the election. In contrast to the high volume of televised advertising

in the US presidential campaigns, the overall amount of advertising is rather low, despite the fact that the parties are allocated a certain amount of free air time on the public television channels. Finally, restrictions on the content of advertisement ban the incitement of hatred against a segment of the population such as a particular race or religion so that the of advertisement in general tends to be mostly positive or neutral. Overall, the quite strong legal restrictions on advertisement raise the question whether parties are nevertheless able to shape the public agenda within environment.

With regard to the media system, it seems important to point out that the German media system in general has been classified as a 'democratic corporatist media system' (Hallin, Mancini 2004) that is marked by a high circulation of local and local newspapers and strong public broadcasting. Over past decades, however, the German media system has become more fragmented as information sources have been proliferating (Schulz 2005: 57): In particular, legal deregulations since the mid-1980s have facilitated the rise of private television, leading to a strong increase in the number of available television channels and ending the previous dominance of public-service broadcasters. Likewise, the rise of online media has added further options for voters to choose from when becoming informed about politics and elections. Thus, overall–although traditional mass media may still play an very important role–the German media system has become increasingly complex, which raises the question of how agenda-setting processes play out under these circumstances.

In addition to this general background, the 2009 and the 2013 German federal election campaigns were also very similar with regard to many other aspects. Both elections were regular elections that were held after the end of the four-year legislation period which left the parties sufficient time to prepare their campaign strategy. Campaign spending was broadly the same in both campaigns (Krewel, Schmitt-Beck, and Wolsing 2011; Krewel 2014; Tenscher 2012), so that the influence of the parties to shape the agenda should not be affected by this. The nature of party competition was very similar as voters held very similar expectations about the election outcome (Krewel, Schmitt-Beck, and Wolsing 2011; Partheymüller 2014) and the pair of chancellor candidates was comparable (Rosar, Hoffmann 2015). With regard to the long-term issue agenda, the campaigns differed only slightly: The 2009 election came about within the mid of the global economic and financial crisis that had spread since the burst of the U.S. housing bubble in 2007, whereas the 2013 campaign took place in the aftermath the European debt crisis (Giebler, Aiko 2015: 14). Therefore, in both instances the campaign agenda was somewhat overshadowed by long- or medium-term trends in the public agenda that constrain the the media's and parties' capacity to influence the agenda during the cam-

paign period (Schönbach, Semetko 1992). For these reasons the cases of the 2009 and 2013 campaigns can be considered as typical instances of contemporary German federal election campaigns that allow for a rather conservative assessment of the stated hypotheses due to the agenda constraints enforced by long-term trends.

4 Data and methods

To test the hypotheses at these two elections, this study makes use of voter survey data and combines it with contextual data about the media content and the party campaigns. Specifically, the study relies on voter survey data from two telephone surveys (Rattinger et al. 2013; Rattinger et al. 2014) that were conducted in accordance with the rules of the rolling cross-section design (Johnston, Brady 2002; Kenski, Gottfried, and Jamieson 2011). On each day of the campaign a randomly selected sample of about 100 respondents was interviewed, so that dynamics of the public agenda can be tracked continuously throughout the campaign. The two surveys differed slightly in the number of days covered before the election (for details, see Partheymüller, Schmitt-Beck, and Hoops 2013; Schmitt-Beck, Faas, and Wolsing 2010). To enhance comparability between the data sets, the analysis here confines itself to the last 55 days before election day in both years. Both surveys asked respondents for up to two most important problems in Germany. The open-ended responses were coded manually according to a hierarchical coding scheme covering a comprehensive set of policy areas.

The contextual data contain information about the issue agenda of television news, national and local newspapers, online news as well as about the agenda of the parties' television advertisements and campaign posters. As part of the GLES project, television news stories of the two major public service channels (ARD, ZDF) and the two major private channels (RTL, Sat.1) as well as newspaper articles of five quality newspapers (Welt, FAZ, SZ, FR, taz) and the highest-circulation tabloid (Bild) were coded by human coders using a coding scheme mirroring the categories of the scheme used for the coding of the open-ended mentions from the voters survey (Rattinger et al. 2012; Rattinger et al. 2015c; Rattinger et al. 2015a; Rattinger et al. 2015b). In addition to these data, newspaper articles of nine local newspapers from a broad range of regions (Berliner Kurier, Berliner Morgenpost, Berliner Zeitung, General-Anzeiger Bonn, Hamburger Abendblatt, Kölner Express, Nürnberger Nachrichten, Stuttgarter Nachrichten, Stuttgarter Zeitung) as well as online news from one of the most frequented political news websites (Spiegel online) were retrieved from the LexisNexis database and automatically coded using a dictionary (Grimmer, Stewart 2013) that was constructed by

the author to match with the categories of the other media material. Finally, the content of the parties' television advertisements and campaign posters was manually coded by the author, again with matching issue categories. Taking advantage of the hierarchical structure of the detailed coding scheme and taking into account the empirical distributions of problem mentions as well as of media issue content, 18 relevant issue areas were identified and the categories were recoded accordingly.

To test the hypotheses, I make use of a semiparametric multilevel model (SPMM) suitable for a longitudinal analysis and taking into account both the individual-level and and the aggregate-level (Fahrmeir, Kneib 2011; Lin, Zhang 1999; Ruppert, Wand, and Carroll 2003). By adopting a multi-level model, the study moves beyond the the distinction of micro- versus macro-level analysis as commonly drawn, for instance, in the Acapulco typology by McCombs (2014: ch. 2). The advantage of such a multilevel model is that it allows to include both stable individual-level covariates, aggregate-level covariates that change over time, as well as interactions between the two levels.

As a further methodological novelty to agenda-setting research, I include flexible distributed lags (Obermeier et al. 2015; Wood 2011) in the model that allow estimate the decay function of the agenda-setting effects in a semiparametric way. This approach has so far not been used in political science applications, however, has been successfully used to study the dynamic impact of in the context of geophysics (Obermeier et al. 2015). The main advantage of this approach over parametric approaches previously pursued is that the semiparametric estimation of the decay function avoids to make arbitrary assumptions about the functional form of memory decay processes (Rubin, Wenzel 1996; Rubin, Hinton, and Wenzel 1999).

The dependent variable in each model is the voters' perceptions of the most important problems. Specifically, based on the first and second mentioned problem, for each of the 18 issues a dummy variable is generated indicating whether the issue was mentioned (1) or was not mentioned (0) by the respondent. Some respondents did not mention any policy-related issues, but rather referred to political processes ("the campaign") or features of political system ("the parties"). These respondents take the value zero on all policy dummies and thus are included each time in the reference category. Respondents answering "don't know" or who refused to answer at are treated as missing data and are omitted from the analysis.[2]

[2] Arguably, respondents who don't know could be included in the reference category but here they cannot be perfectly separated from the refusals due to the open-ended question format where blanks could mean either of the two.

To assess the media's agenda-setting power (Hypothesis 1 and 3), the media data are linked to the voter survey through a combination of the news exposure measures available in the voter survey, the date of interview, and lagged variables of the news content. Specifically, for each issue a matrix containing the *likely exposure history over the past 28 days* of the respondents is constructed. Findings from previous research indicate that a maximum time lag of 28 days should suffice to capture and compare agenda-effects across different daily news media outlets as agenda-setting effects have even been found to occur and decay even within a much shorter time frame (Wanta, Hu 1994). Likely exposure on each of the 28 days before the interview is calculated by multiplying the relative frequency of exposure (number of days per week / 7) to a given news source with the number of news items from that source making reference to a given issue. For television news and national newspapers, in addition to the weekly exposure measure, additional information is available about the use on the day immediately before the interview (1 "yes", 0" "no"). In order to capture exposure as precisely as possible, this indicator is used for these sources to determine the likely amount of exposure at Lag 1. Exposure and content of television news and national newspapers can be exactly matched at the level of the media outlet. For local newspapers the media content is averaged across the available sources, to generate a proxy measure of the local newspaper agenda. Similarly, the measure of the online news agenda based on one highly visible source provides an approximation of the overall online agenda. Thus, overall, as common in many observational studies that account for the individual-level (Beck et al. 2002; Dalton, Beck, and Huckfeldt 1998; Erbring, Goldenberg, and Miller 1980; Rössler 1999; Schuck, Vliegenthart, and De Vreese 2016a,2016b; Selb 2003; Wolling 2002), an probabilistic approach to combine media content and exposure measures is pursued to capture the voters' exposure history.

Similarly, to test for the influence of party advertisement (Hypothesis 2), the content analysis data of party advertisement is linked to the voter survey through the measure of reported exposure to advertising. In this case, the parties' television advertisement and the campaign posters serve as a proxy for the parties' issue emphasis. The emphasis on an issue is determined by whether the party mentioned an issue not at all (0), in one of the two forms of advertisement (1), or in both (2). The relative emphasis on an issue by a party (number of mentions / 2) was then multiplied with a party-specific indicator from the voter survey indicating whether the respondent had been exposed to advertisement of that party and summed up across all parties to determine *likely exposure to the parties' agenda*. The exposure measure in this case captured only whether voters had already been exposed to the parties' campaign communication (1 "yes", 0" "no") during the ongoing campaign (not when). For this reason,

no lags for past exposure can be included as this measure is not suitable to interpolate backwards. Still, the measure allows to assess the overall net impact of campaign advertisement. As the question of exposure to advertisement was only asked during the last four weeks before the election as legal constraints, the exposure measures for respondents interviewed before that date are set to zero and a dummy variable (1 "not asked", 0 "asked") is included to account for the missing data (Allison 2010).

A number of control variables is included alongside these measures. In particular, following a suggestion by Fazekas and Larsen (2016) the media exposure measures (not combined with the content measures) are included in addition to the combined content-based measures as this allows to evaluate whether some audience are generally more inclined to specific issues regardless of recent exposure to content. The media exposure measures capture the number of days in a week an outlet has been used (0 to 7 days; rescaled to zero-to-one range). Further controls include the frequency of personal political discussions (0 to 7 days; rescaled to zero-to-one range), political interest (0 "not at all" to 4 "very strong"; rescaled to zero-to-one range), school education (1 "12 years of school or more" 0 "less than 12 years"), party identification (1 "CDUC/SU", 2 "SPD", 3 "Greens", 4 "Left", 5 "Other party", 6 "No party identification"), social class (1 "Worker", 2 "New middle class", 3 "Old middle class", 4 "Never gainfully employed"), union membership (1 "Yes, self or hold member", 0 "No"), religious affiliation (1 "Catholic", 2 "Protestant", 3 "Other/None"), church attendance (1 "Never" to 4 "Once a week or more"; rescaled to zero-to-one range), age (18-39 years, 40-64 years, 65 years and older), gender (1 "male", 0 "female") and region (1 "New states", 0 "Old states").

Besides these controls at the individual level (level 1), a smooth time trend is included at the aggregate level (level 2) to account for unobserved dynamic factors and possible autocorrelation across adjacent days (Fahrmeir, Kneib 2011; Lebo, Weber 2015). At the same time, a random component is included capturing the non-smooth variance across the days of the election campaign and accounting for the fact that the individual observations are nested within the day of interview.

The analysis proceeds in three steps: In the first step, the dynamics in the public agenda are visually explored using smoothing techniques that allow to identify issues that show significant over-time variation.[3] In the second step, focussing on those issues with significant tem-

[3] As the size of the daily rolling cross-section samples is relatively small, it is recommended to apply smoothing techniques to the data to separate the signal from random sampling error (Brady, Johnston 2006). For this purpose the share of respondents was smoothed by a penalized cubic regression spline (Hastie, Tibshirani 1990; Wood 2006,2015) with automatic smoothness selection (Keele 2008; Wood 2011). To quantify the uncertainty

poral change, the dynamics are modelled as a function of the exposure to media content (Hypothesis 1) and campaign advertisement (Hypothesis 2). This analysis allows to estimate the impact the media and the parties on the public agenda as well as to estimate the decay of the media agenda-setting effects. In the final step, for those issues that show significant media agenda-setting effects, the measure of exposure to media content is then differentiated by the type of the outlet. This, finally, allows to assess whether some media are more effective agenda-setters than others (Hypothesis 3).

5 The dynamics of the public agenda

Fehler! Verweisquelle konnte nicht gefunden werden. shows the dynamics of the public agenda in the German federal elections 2009 and 2013.[4] One of the most striking features is the high levels of importance of economic and employment issues. In particular, in 2009, facing the global economic and financial crisis that hit the German economy in that year (Anderson, Hecht 2012), the concern about and employment and the economy dominated the public agenda (see left panel in Figure 2). The concern about the employment situation essentially remained at the same level throughout the campaign and the concern about the economy at decreased only slightly during the campaign. In 2013, the concern about employment and the economy was overall lower than in the previous election, but due to the Eurozone crisis concern about the stability of the Euro and related European issues had surged (Giebler, Aiko 2015). During the campaign the concern about the economy and employment decreased even slightly further whereas the concern about European issues remained at the same level. Thus, overall the evidence suggests that the long-term issue agenda clearly shaped and constrained the campaign agenda in both elections (Schönbach, Semetko 1992).

However, apart from this, a number of significant short-term dynamics can be seen in Figure 2. For instance, in 2009 there was a steep and sudden rise in concern about defence about three weeks before election day. This sudden significant rise is likely to be related to the news that broke about the bombing of two fuel transporters in Afghanistan that had been ordered by the German armed forces and caused the death of many civilians (Pötzschke, Schoen, and

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of the spline fit, 95% confidence intervals were calculated using simulation (King, Tomz, and Wittenberg 2000; Krinsky, Robb 1991). To identify periods of significant change, in addition, the first derivate spline was calculated using finite differences and tested against zero with a 95% confidence interval (Simpson 2014).

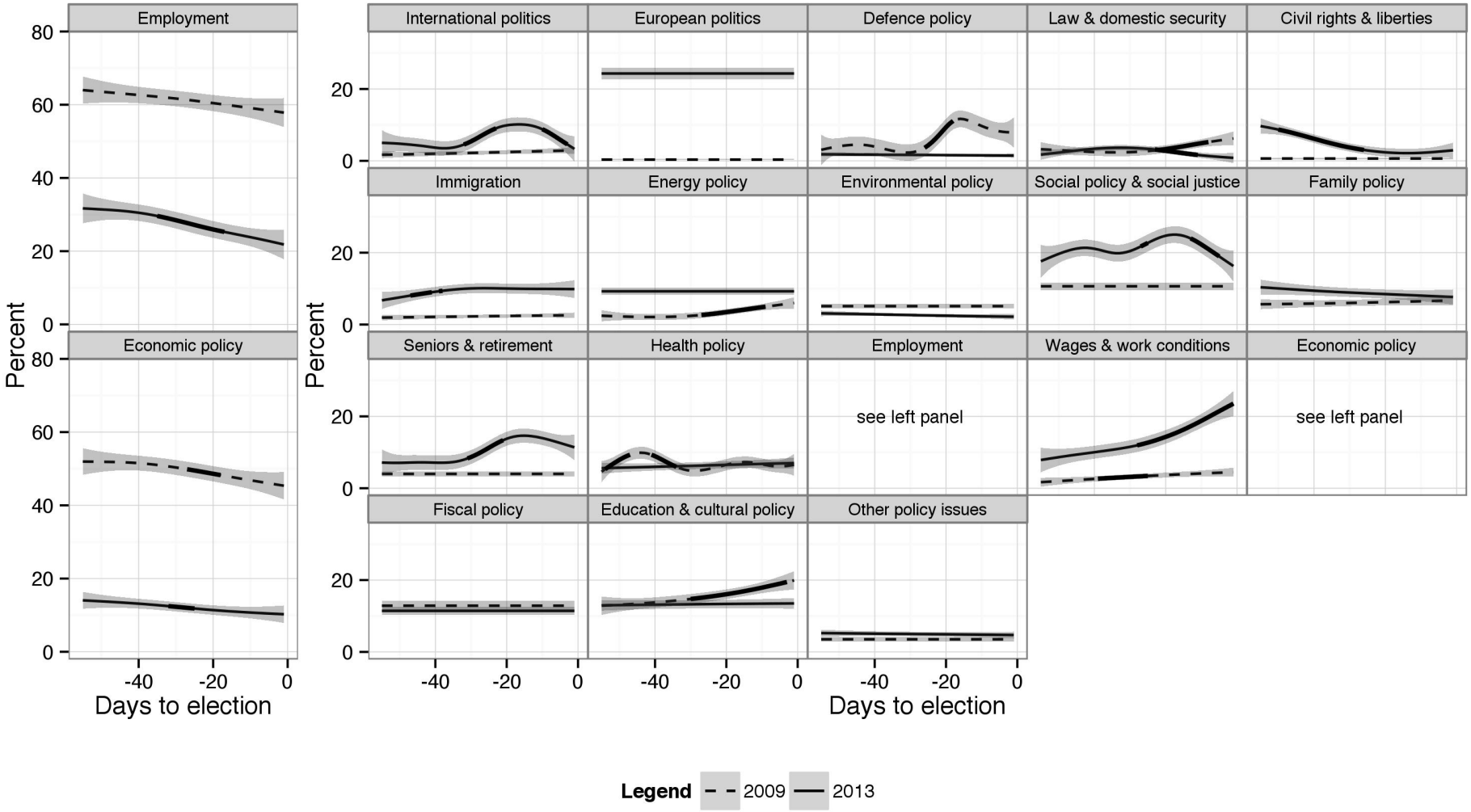
[4] The x-dimension in each panel shows the time remaining until election day. Within each panel, the smoothed share of respondents mentioning an issue is shown together with a 95% confidence interval and bold segments of the fitted line highlight periods of significant change.

Rattinger 2015; Schoen 2010). During the campaign, the Minister of Defence, Franz-Josef Jung (CDU), first tried to downplay the issue by emphasizing the necessity of the airstrike and denying civilian casualties, but shortly after the Federal Government had to acknowledged the civilian casualties that were caused by the bombing (Sattler 2013), leading to quite some public debate and causing a significant spike in media coverage.[5] Similarly, in 2013 concern international affairs surged four weeks before the election. The rise of public concern in this case is most likely to be related to news about the Syrian conflict that broke during that time. Specifically, the Syrian government had used chemical weapons against civilians in the city of Ghouta causing a large number of civilian deaths (United Nations 2013) which led to a public debate about a possible humanitarian intervention in Syria, raising as well the question of a potential German involvement. As it became clear rather quickly that an intervention was lacking political and public support in many countries, the issue disappeared quickly from the news agenda and public concern about issue faded as well. The sudden rise (and fall) of issues such as defence policy and international politics found here is in line with other research that has pointed out that issues in the area of foreign affairs are often highly susceptible to agenda-setting effects because these issues can be experienced by the public mainly through the mass media (Althaus, Kim 2006; Cohen 1963; Iyengar, Simon 1993; Krosnick, Brannon 1993; Soroka 2003; Zucker 1978).

Another example of this is the concern about civil rights and liberties in 2013 where public concern significantly decreased during the first weeks of the observation period. The heightened levels of concern about civil rights and liberties in that year are likely related to the revelations about the mass surveillance of electronic communication by foreign intelligence agencies that had caused up considerable public debate and amounts of coverage. The public debate had been ongoing over the preceding months, but came quickly came to an end when about six weeks before the election the Head of the Federal Chancellery, Ronald Pofalla (CDU), declared that the allegations against the foreign intelligence services were "off the table". As the actions of intelligence services are essentially impossible to observe in daily life, it seems very plausible that such an issue is particularly susceptible to the influence of media coverage.

[5] For the dynamics of the media coverage, see Figure A1 in the Appendix.

Figure 2: Dynamics of the public agenda, 2009 & 2013



Finally, a number of issues seems less evidently related to the news coverage of policy issues, but may instead rather be related to campaign efforts of the political parties. For instance, in 2009 some increase in public concern occurred in the following four policy areas: law and domestic security, energy policy, health policy, wages and working conditions and education. Some of these issues seem rather suitable to carry a symbolic meaning and therefore seem suitable to activate latent supporters. Specifically, law and domestic security can be considered as an issue traditionally owned by the Christian Democrats, energy policy has been an issue owned by the Greens, and wages and working conditions are a theme traditionally addressed by parties on the left such as Social Democrats and the Left party. Likewise, in 2013 the public became increasingly concerned about issues such as seniors and retirement, wages and working conditions, social policy and social justice (at least for a short time). The analysis of campaign advertisement confirms that voters became increasingly exposed to such issues (see Figure A2 in the Appendix) during the election campaigns. Therefore, it seems likely that at least some of the increase in public concern about these issues was initiated by the advertisement campaigns of the political parties.

6 Explaining agenda dynamics

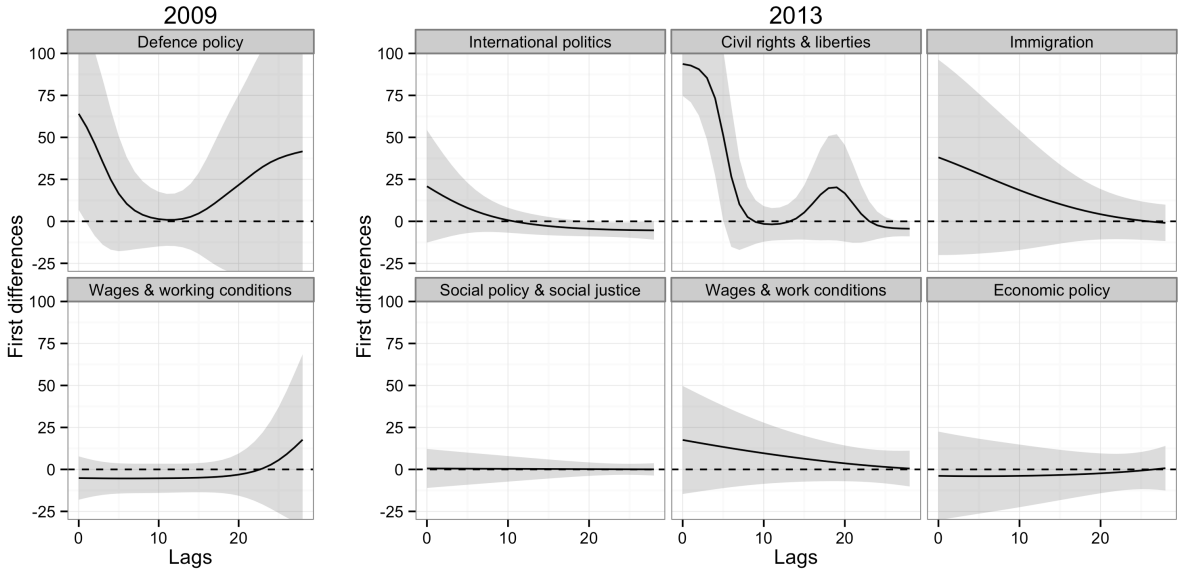
To test the first hypothesis, separate models for each issue that displayed significant dynamics were estimated (full estimation results see Table A1 in the Appendix). For two out of these these issues significant media agenda-setting effects can be found (see Figure 3)[6]: Defence policy (2009) and international politics (2013). These results show that the media can influence voters' concern about political issues by emphasizing the issue. The initial impact is even extremely large which is line with the notion of the mass media as a powerful agenda-setter. For instance, in case of the issue of civil rights and liberties in 2013, the initial impact reaches almost 100 percent which implies that if somebody saw most of the available news

[6] Figure 3 shows first differences representing the change in probability when moving from the minimum value to 97.5 percent of the maximum value of perceived media content. The reason for not moving to the maximum is that in some cases this may cause extreme predictions due to the presence of outliers which would lead to an exaggeration of the impact of the media coverage (see,). Alongside the main estimate Figure 3 displays 95%-confidence bands. Figure 3 only displays the dynamic impact of the perceived news content for those models with an effective degree of freedom > 0 (see full estimation tables in Table A1 and Table A2 in the Appendix) as in the remaining cases the smooth term representing the effect of news exposure effectively gets penalized out of the model, meaning that news exposure had no impact on the issue importance and that the term should essentially be omitted from the model to improve model fit.

stories about this issues on the day of the interview, this person would almost certainly would name the problem as one of the most important issues.

Yet, at the same time – in line with the agenda-cueing hypothesis (Hypothesis 1) – the evidence confirms as well that the impact of media coverage is strictly limited by voters' memory as the initial impact declines rather quickly over time. Essentially, news coverage raises voters' concern about an issue for up to ten days, according to the central estimate (solid line). The uncertainty of this estimate, however, is quite high in case of the defence issue in 2009. Here, the impact of news coverage is significantly different from zero at the 5%-level only in the first few days and towards later lags the uncertainty bounds become extremely wide. The reason for this most likely is that the defence coverage only surged very shortly before the election, so that the impact of higher-order lags is essentially unobserved. In 2013, the coverage about the civil rights and liberties, in contrast, occurred early during the campaign and the uncertainty bounds are much narrower as a consequence. Here, the analysis confirms a significant impact of the news coverage lasting for 7 days. Thus, although the initial effect of media coverage on issue salience is very large, it is only very short-lived lasting only for a couple of days.

Figure 3: Dynamic impact of likely perceived news content (28 lags)



For the remaining issues, no significant agenda-setting effects can be detected. Nevertheless, three more issues show a similar declining pattern as the two previously mentioned issues. In particular, international politics, immigration and wages and working conditions show a slight

tendency that recent exposure to media content raises the salience of these issues. In case of international politics, the effect almost reaches significance and it might just be product of chance that this effect remains below the threshold in this case. In other cases, one reason for the weak or absence of agenda-setting effects is most likely that these issues received only minimal news coverage (see Figure A1 in the Appendix). Thus, the absence of agenda-setting effects in these cases is most likely due to the lack of sufficient news coverage, which is a pre-condition to study agenda-setting effects, instead of being evidence of anything else.

Table 1: Net impact of perceived ad content

2009	AME
Defence policy	25.26 (8.78)**
Law & domestic security	12.45 (5.68)*
Energy policy	15.09 (4.32)***
Health policy	10.45 (9.50)
Wages & working conditions	0.16 (4.18)
Economic policy	-2.29 (4.36)
Education & cultural policy	0.58 (2.49)
2013	
Employment	-3.46 (10.26)
Economic policy	-1.37 (2.76)
International politics	-4.75 (12.49)
Law & domestic security	-0.00 (0.00)
Civil rights & liberties	6.67 (6.89)
Immigration	-29.22 (24.17)
Social policy & social justice	-4.01 (4.06)
Seniors & retirement	3.47 (3.38)
Wages & work conditions	9.32 (4.49)*

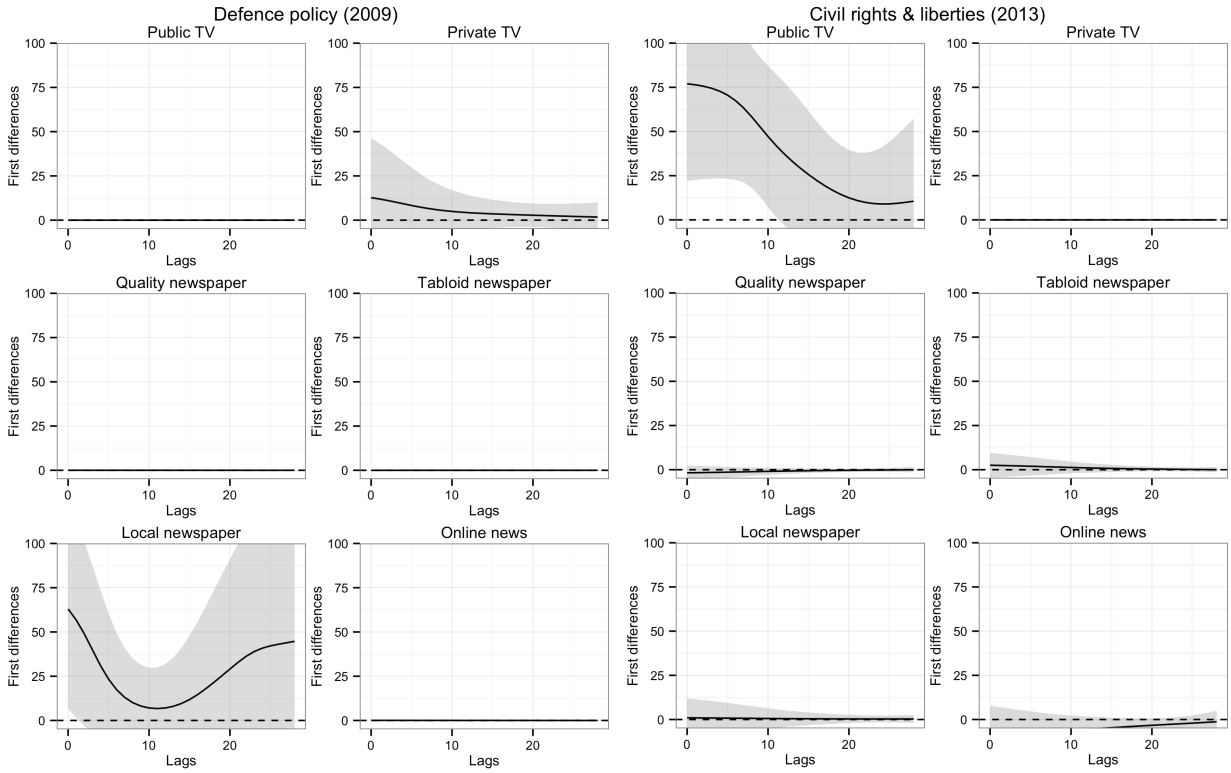
Note: Table summarizes the effect of a 0-1 change in the variable "Ad exposure: Yes (means)" which is equal to the change in probability when voters on average are likely to have seen at least one ad mentioning the issue. See Table A1 and A2 in the Appendix for full estimation results.

To examine Hypothesis 2, in addition to the measure of perceived media content an additional measure of perceived ad content was included in the model. Table 1 displays the results.[7] In several cases an overall unit increase in exposure to issue content through ads leads to a significant increase in the probability to name the issue as one of the most important issues. Specifically, in 2009 these issues include defence policy, law and domestic security, and energy policy. Compared to the latter to issues, in particular, the effect on the salience of defence policy was particularly pronounced. Defence policy in this year was exclusively addressed by advertisement of the Left party with the Left being the only party that outspokenly opposed the military operation in Afghanistan at the time. Thus, the issue was clearly owned by the Left party – a condition that has been found to enhance the impact of advertising in experiments (Ansolabehere, Iyengar 1994). Yet, the presence of the issue in the media might have also contributed to that, even though, experimental research so far has not confirmed such an interactive effect.

In 2013, the only significant impact of advertisement concerns wages and working conditions. This issue figured particularly prominently in the campaign advertisement of the Social Democrats, but also Greens and the Left party were campaigning on that issue. In this case, thus, the issue was not strictly owned by one single party. Nevertheless, exposure to ad content addressing the issue raised the probability that the issue was considered as being important. For none of the remaining issues advertising significantly affected the public agenda. The estimates are typically smaller or subject to quite some uncertainty which might imply that the perceived advertising may have been less sweeping in these cases or that only small audiences were reached. Overall, the analysis confirms that despite the legal restrictions on campaign advertising in Germany, the political parties are able to shape the public agenda with their advertisement campaigns.

[7] The findings of the advertisement effects reported here are the longitudinal effects at the aggregate level and are therefore not conflated with individual-level heterogeneity. Individual-level variation in this case has been removed from the measure by group-mean centering (see also Lebo & Weber, 2015).

Figure 4: Dynamic impact of likely perceived news content by news outlet (28 lags)



Finally, to test the hypothesis about the role of media fragmentation (Hypothesis 3), the models showing significant media agenda-setting effects–defence policy (2009) and civil rights and liberties (2013)–were re-estimated differentiating between different types of media. The results are shown in Figure 4 (for full estimation tables, see Table A3). These results show that the traditional mass media seem to be more effective agenda-setters than more entertainment-oriented or opinionated information sources. In 2009, the increase in salience of the defence issue is mainly related to the perceived coverage from local newspapers. This finding demonstrates the importance of local newspapers which often are neglected when studying agenda-setting and other types of media effects (Schönbach 1983). Apart from that, only a weak increase for private television becomes apparent. However, the impact of exposure to issue content on private television turns out to be insignificant.

In 2013, the agenda-setting effect is mainly driven by the agenda-setting power of public television. Again, the initial impact is very strong and declines over time, confirming the expectation that the main mechanism behind agenda-setting effects is agenda-cueing. For the remaining information sources no significant agenda-setting effects can observed and even the point estimates are close to zero. Taken together, the evidence from these two campaigns confirms the notion that mainly the traditional mass media serve as agenda-setters, whereas other media seem to be less effective.

To sum up, the analyses confirm both the media's agenda-setting power as well as the limitations to agenda-setting. First of all, although the short-term initial impact of perceived news content turns out to be very strong, the media's influence on issue salience declines very quickly within a couple of days after exposure. Most likely, this is a consequence of memory decay: As soon as the political information evades is no longer active in voters' memory as a result of recent exposure, the information becomes discarded and can no longer serve as a cue to determine what are the most important issues. Secondly, the media apparently are not the only relevant suppliers of political information during election campaigns. Despite the legal restrictions on advertising the analyses support the hypothesis that campaign advertisement may shape as well public priorities. Finally, the traditional mass media–in particular, public-service television and local newspapers–have been identified as the most effective agenda-setters. Entertainment-oriented outlets, more opinionated sources, or sources that allow for highly selective news consumption, in contrast, seem to be less suitable to influence the public agenda.

7 Conclusion

This chapter has investigated the agenda-setting dynamics during the campaign period at the 2009 and the 2013 German federal elections. The media have often been considered as the most powerful agenda-setter during election campaigns. Yet, some studies suggest the media's influence may in fact be more limited than often believed. In particular, three factors have been investigated here that may pose limits on the media's agenda-setting influence: voters' memory, the advertising by the political parties, and the fragmentation of the media system. The impact of the media coverage on the public agenda were investigated making use of a very rich data basis generated by the German Longitudinal Election Study (GLES) by linking media content analysis data to voter survey data that has been gathered according to the rules of the rolling cross-section design (Johnston, Brady 2002; Kenski, Gottfried, and Jamieson 2011). The analyses have provided support for the idea that media are in fact a powerful agenda-setter, but that its influence is nevertheless constrained by voters' cognitive capacities and the structure of the campaign information environment.

With regard to the first research questions–(1) whether higher levels of issue coverage lead to an increase in public concern about an issue–the analysis has shown that media coverage does have an impact on the public agenda. A pre-condition for this, however, is that there are sufficiently large amounts of coverage that reach a substantive share of the population. Otherwise

the effect in the aggregate would be too small to shift the public agenda into one direction. As the media selectively emphasize "newsworthy" issues, agenda-setting effects were mostly present for the few most intensely debated issues of the election campaign. In 2009, significant media agenda-setting occurred after news about an airstrike in Afghanistan causing civilian casualties broke, raising public concern about the military mission. In 2013, the Snowden revelations about mass surveillance produced sufficient amounts of news coverage to have an impact on public priorities. The immediate impact of the media coverage in these cases was even extremely large initially, but declined very quickly thereafter.

This leads to the second research question of how long agenda-setting effects last. The analyses have demonstrated agenda-setting effects during the campaign period tend to be rather short-lived and decline within a couple of days. According to the estimates, after about ten days, voters will not care much about the news they have recently been exposed to. The rapid decline of the agenda-setting effect indicates that voters' limited memory capacities reduce the potential influence of media on elections. After a short-term excitement, people seem to forget about the issue that they encounter in the daily news rather quickly. This memory decay is indicative of agenda-cueing and a rather superficial mode of information-processing. Once the information gets discarded from the short-term memory, voters' priorities seem revert to their baseline, without much permanent change in their political priorities. This does not preclude that voters may engage in more thorough agenda-reasoning in more controlled settings (Bulkow, Urban, and Schweiger 2013; McCombs, Stroud 2014). But under real-world conditions voters seem to rather satisfice and invest only quite limited effort to process the daily news for most part.

The third research question of this chapter focussed on whether parties can effectively bypass the media through advertising and directly influence public concern about issues. Usually, during election campaigns parties seek to highlight issues that they "own" in order to activate their latent supporters (Petrocik 1996; Walgrave, van Aelst 2006). The analysis supported the notion that the parties are able to shape the public agenda by means of advertising. Although the parties were not successful with each and every issue, they still managed to increase the public awareness of political problems in several instances. This shows that campaign agendas not only reflect the priorities by the media and the voters, but also those of the political parties (Dalton et al. 1998). Thus, although political advertising is subject to quite strong legal restrictions in the German context allowing only for a rather low intensity of advertisement exposure, parties seem to be able to bypass the media and bring some of their own issues to the public agenda.

Finally, the fourth research question addressed the role of media fragmentation. Over past decades, media systems have become more fragmented. Previous research has argued that with the proliferation of news sources voters increasingly may choose to opt out of political news altogether (Prior 2007) or may select into opinionated sources that supply them with congruent information (Iyengar, Kinder 2010; Stroud 2011). In the German case, in particular, the rise of private television and online media has added continuously more and more information sources to choose from for the voters. In line with the arguments by previous research the analyses have demonstrated, however, that these new sources are less effective agenda-setters than traditional mass media such as local newspapers or public-service television that usually feature more political content and facilitate inadvertent exposure. This finding implies that to the extent that voters substitute traditional mass media with more entertainment-oriented or highly selective opinionated information sources, the more these voters are likely to form their own idiosyncratic agendas.

Overall, these findings have important implications for the pre-conditions under which the media may be able to influence elections: Most notably, when a topic becomes highly salient shortly before an election, this has the potential to sway a close race into one direction rather than the other–even when the message content is rather meaningless. Late shocks to the news agenda may thus produce a situation in which indeed the media, rather than the voters, decide about the election outcome. To reduce the media's influence, the political parties can try to reach voters directly by means of advertisement. By establishing direct channels of communication, the political parties can provide their supporters with information about issues that are suitable to activate voters' predispositions. Finally, increasing media fragmentation may further reduce agenda-setting effects to the extent that voters substitute traditional mass media with either more entertainment-oriented information sources or such opinionated sources that allow for high selectivity. Thus, although the media may serve as a powerful agenda-setter during the campaign period, their power finds its limits in voters' cognitive capacities and the structure of the campaign information environment.

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Title: ***Agenda-setting dynamics during the campaign period (APPENDIX)***
Authors: ***Julia Partheymüller***

Dynamics of key independent variables

Figure A 1: Dynamics of perceived media attention, 2009-2013

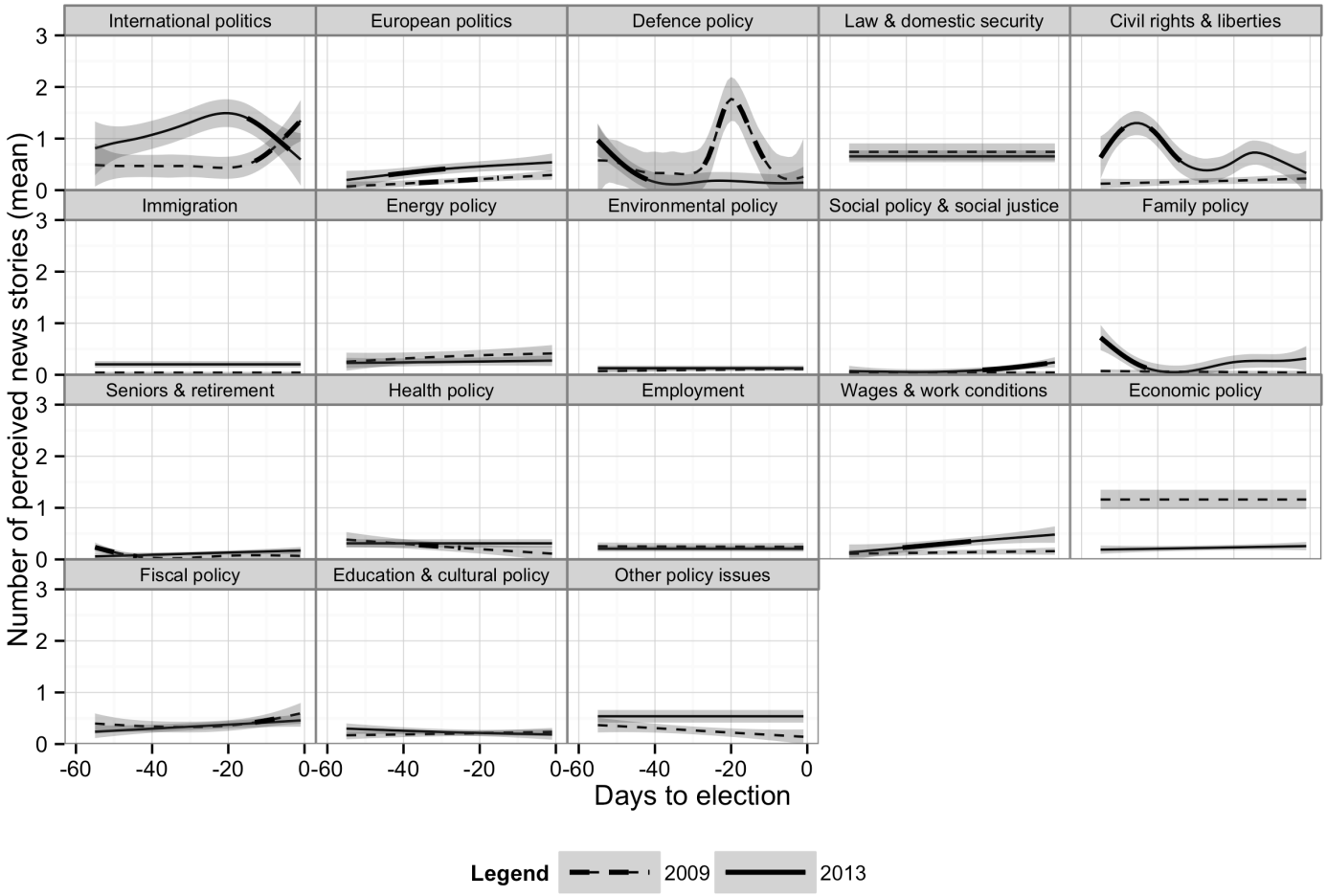
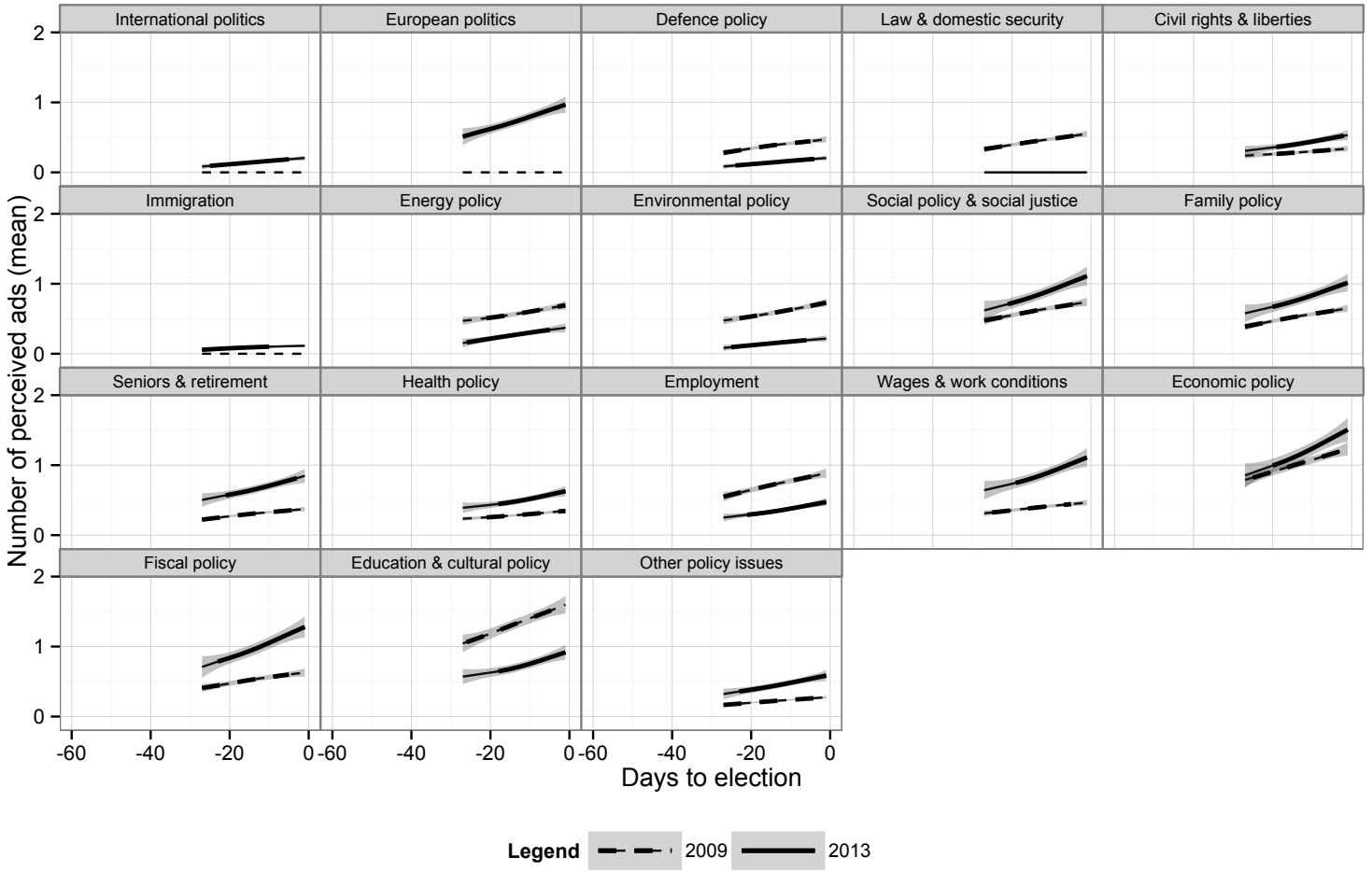


Figure A 2: Dynamics of perceived advertisement, 2009-2013



Full estimation tables

Table A 1: Agenda-setting effects, 2009

	German federal election, 2009						
Level 2 **Level 1**	**Defence policy**	**Law & domestic security**	**Energy policy**	**Health policy**	**Wages & working conditions**	**Economic policy**	**Education & cultural policy**
Non-parametric terms							
Perceived news content (28 lags)	4.00 (Fig.3)	0.00 (–)	0.00 (–)	0.00 (–)	0.98 (Fig.3)	0.00 (–)	0.00 (–)
Time trend	0.53 (–)	0.00 (–)	0.00 (–)	0.00 (–)	0.00 (–)	0.00 (–)	0.00 (–)
Random effect	16.63 (–)*	16.43 (–)**	7.84 (–)	1.68 (–)	7.97 (–)	2.04 (–)	0.01 (–)
Parametric terms							
Perceived ad content: Yes (means)	25.26 (8.78)**	12.45 (5.68)*	15.09 (4.32)***	10.45 (9.50)	0.16 (4.18)	-2.29 (4.36)	0.58 (2.49)
Perceived ad content: Not asked	4.44 (4.21)	5.50 (4.38)	9.38 (5.13)*	3.66 (2.97)	-1.84 (1.78)	0.68 (4.47)	-3.34 (3.28)
Perceived ad content: Yes	0.33 (0.80)	-1.32 (0.80)	0.30 (0.50)	-1.68 (1.70)	0.29 (0.70)	-0.52 (0.89)	-0.09 (0.53)
Public TV news use	-1.42 (1.54)	-0.24 (0.53)	-0.04 (0.59)	-1.13 (0.73)	0.72 (0.65)	-1.60 (1.26)	1.87 (1.03)
Private TV news use	-0.24 (1.39)	1.54 (0.73)*	-3.07 (1.28)*	0.48 (1.12)	0.23 (0.77)	-5.08 (2.11)*	-5.64 (1.91)**
Quality newspaper use	-0.12 (2.02)	2.38 (1.14)*	-1.94 (1.36)	0.66 (1.72)	-2.39 (1.80)	4.12 (3.24)	1.51 (2.19)
Tabloid newspaper use	-0.52 (2.74)	0.21 (1.41)	0.41 (1.82)	-1.40 (2.28)	-0.62 (1.38)	4.78 (3.68)	0.42 (3.12)
Local newspaper use	1.61 (1.13)	0.55 (0.71)	0.03 (0.78)	1.26 (1.02)	0.18 (1.43)	3.67 (1.87)	-0.50 (1.42)
Online news use	-1.85 (1.66)	-2.51 (1.44)	-0.08 (1.14)	3.66 (1.47)*	1.60 (2.28)	-0.32 (3.00)	1.36 (2.05)
Political conversations	0.32 (1.33)	0.43 (1.06)	0.76 (1.15)	-2.03 (1.53)	1.73 (0.97)	-4.14 (2.83)	5.16 (2.04)*
Political interest	0.08 (1.60)	-1.51 (1.36)	2.23 (1.49)	-2.08 (1.76)	0.08 (1.18)	11.55 (3.14)***	10.89 (2.62)***
Education (ref.: Low):							
- Medium	-0.15 (1.05)	0.31 (0.87)	-0.48 (0.94)	-1.63 (1.18)	-1.55 (0.95)	7.79 (2.20)***	2.15 (1.63)
- High	0.17 (1.12)	-0.59 (0.90)	0.94 (1.01)	0.44 (1.23)	-1.99 (1.02)*	13.37 (2.23)***	7.65 (1.69)***
Party ID (ref.: None):							
- CDU/CSU	-0.75 (0.92)	0.42 (0.79)	-0.50 (0.78)	-0.54 (1.05)	-0.72 (0.66)	12.46 (1.92)***	1.38 (1.48)
- SPD	-0.31 (1.00)	-0.23 (0.77)	0.64 (0.84)	0.22 (1.15)	1.12 (0.83)	2.73 (2.01)	3.26 (1.57)*
- FDP	-1.81 (1.47)	0.61 (1.50)	-1.28 (1.09)	0.32 (1.87)	1.58 (1.56)	7.85 (3.21)*	0.30 (2.39)
- Greens	0.95 (1.44)	-1.59 (0.97)	3.70 (1.31)**	-1.42 (1.33)	-0.74 (1.03)	-1.13 (2.66)	3.56 (2.00)
- Left party	6.96 (2.37)***	0.54 (1.53)	-2.05 (1.31)	-0.89 (1.99)	2.89 (1.58)*	-9.68 (3.53)**	-0.05 (2.77)
- Other party	3.86 (4.01)	5.71 (3.96)*	0.43 (3.08)	-4.63 (3.36)	1.54 (2.61)	4.35 (6.16)	-0.34 (4.86)

Religion (ref.: None/other):							
- Catholic	1.62 (1.27)	-1.65 (1.10)	-0.00 (1.01)	1.94 (1.34)	-0.52 (1.13)	1.29 (2.53)	-2.38 (1.90)
- Protestant	0.91 (1.03)	-0.79 (1.03)	0.86 (0.95)	1.47 (1.18)	-1.40 (0.91)	2.19 (2.33)	-0.51 (1.74)
Church attendance	-2.06 (1.38)	1.35 (1.19)	-0.36 (1.19)	0.10 (1.50)	-0.26 (1.22)	-2.91 (2.93)	-0.77 (2.14)
Class (ref: Old middle class):							
- Worker	2.95 (1.53)*	0.81 (1.04)	-1.06 (1.29)	-0.80 (1.81)	1.87 (1.35)	-3.83 (3.25)	4.08 (2.59)
- New middle class	1.74 (0.96)	1.35 (0.79)	-0.04 (0.92)	-0.43 (1.31)	-0.40 (0.94)	0.64 (2.28)	3.72 (1.60)*
- Never gainfully employed	3.19 (1.67)*	1.79 (1.35)	0.36 (1.29)	-2.99 (1.58)	-1.94 (1.10)	-2.52 (3.16)	14.64 (2.56)***
Union membership	-0.15 (0.87)	-0.05 (0.72)	0.18 (0.73)	-1.28 (0.93)	0.26 (0.67)	0.25 (1.73)	-0.46 (1.36)
Age (ref.: 18-39 years):							
- 40-64 years	1.29 (0.85)	0.22 (0.70)	-1.12 (0.77)	1.51 (0.93)	-0.83 (0.72)	3.45 (1.81)	-3.99 (1.49)**
- 65 years and older	3.75 (1.33)**	1.67 (1.12)	-0.77 (1.10)	1.24 (1.29)	-1.00 (0.97)	-6.54 (2.58)**	-5.86 (1.96)**
Gender: Male	1.55 (0.74)*	1.27 (0.62)*	1.17 (0.65)	-2.33 (0.82)**	-0.10 (0.56)	9.27 (1.51)***	-6.88 (1.16)***
Region: East	2.11 (1.04)*	0.43 (0.77)	-0.37 (0.79)	0.92 (1.10)	2.12 (0.85)**	-3.88 (1.92)*	-0.86 (1.38)
AIC	1991.39	1297.51	1460.75	2378.57	1216.22	6214.73	4093.53
BIC	2350.58	1616.07	1733.29	2599.74	1500.84	6440.35	4293.46
Log Likelihood	-939.97	-599.33	-688.09	-1154.97	-563.95	-3072.36	-2015.75
Deviance explained	9.78	7.18	8.14	2.21	9.26	4.54	6.31
Num. respondents	4655	4655	4655	4655	4655	4655	4655
Num. days	55	55	55	55	55	55	55

Notes: For non-parametric terms entries are the effective degrees of freedom (EDF). The Figure displaying the non-parametric effect is indicated in parentheses for the main variable when the EDF is larger than one as smaller values indicate that the term gets penalized out of the model. For parametric terms entries are average marginal effects (AME) together with standard errors in parentheses.
***p < 0.001, **p < 0.01, *p < 0.05

Table A 2: Agenda-Setting Effects, 2013

	German federal election, 2013								
Level 2 **Level 1**	**International politics**	**Law & domestic security**	**Civil rights & liberties**	**Immigration**	**Social policy & social justice**	**Seniors & retirement**	**Employment**	**Wages & work conditions**	**Economic policy**
Non-parametric terms									
Perceived news content (28 lags)	1.00 (Fig.3)	0.00 (–)	4.00 (Fig.3)*	0.76 (Fig.3)	0.03 (Fig.3)	0.00 (–)	0.00 (–)	0.60 (Fig.3)	0.49 (Fig.3)
Time trend	0.00 (–)	1.85 (–)*	1.54 (–)**	1.06 (–)*	0.00 (–)	0.00 (–)	0.00 (–)	1.22 (–)*	0.00 (–)
Random effect	15.45 (–)*	0.00 (–)	5.33 (–)	16.24 (–)*	1.16 (–)	0.00 (–)	0.02 (–)	6.14 (–)	3.08 (–)
Parametric terms									
Perceived ad content: Yes (means)	-4.75 (12.49)	-0.00 (0.00)	6.67 (6.89)	-29.22 (24.17)	-4.01 (4.06)	3.47 (3.38)	-3.46 (10.26)	9.32 (4.49)*	-1.37 (2.76)
Perceived ad content: Not asked	1.38 (1.58)	0.00 (0.00)	0.71 (0.94)	3.98 (1.84)*	0.11 (0.81)	-0.40 (0.61)	3.69 (1.94)	-0.62 (0.63)	0.11 (0.55)
Perceived ad content: Yes	-5.60 (1.93)**	0.09 (1.08)	0.74 (2.75)	1.20 (2.53)	-6.52 (3.54)	-3.83 (2.33)	5.78 (3.75)	7.49 (3.77)*	1.38 (3.33)
Public TV news use	-0.75 (0.75)	-0.31 (0.47)	1.34 (1.00)	-0.44 (0.86)	-0.71 (1.13)	0.97 (0.78)	-0.54 (1.21)	1.12 (1.03)	-0.15 (0.92)
Private TV news use	-0.29 (1.22)	-0.50 (0.90)	-2.22 (1.65)	0.96 (1.26)	-2.73 (2.13)	2.12 (1.25)	5.21 (2.00)**	2.70 (1.56)	-1.04 (1.93)
Quality newspaper use	-2.03 (1.97)	0.27 (1.19)	0.76 (1.56)	-5.09 (2.58)	0.72 (2.69)	0.10 (2.09)	4.77 (2.96)	-3.51 (2.68)	-0.65 (2.21)
Tabloid newspaper use	-0.91 (2.15)	-0.96 (1.61)	-0.98 (2.56)	6.25 (1.86)***	-0.83 (3.62)	3.23 (2.06)	-0.98 (3.54)	-1.99 (2.80)	-0.56 (3.95)
Local newspaper use	-1.39 (1.06)	-0.01 (0.69)	-2.99 (1.34)*	-2.41 (1.73)	0.67 (1.69)	-0.07 (1.13)	-1.50 (1.75)	-2.83 (1.62)	0.28 (2.17)
Online news use	1.40 (1.23)	-1.88 (1.00)	2.37 (1.82)	1.19 (1.86)	3.42 (1.95)	-3.54 (1.53)*	-6.72 (2.17)**	-2.27 (2.15)	3.25 (2.04)
Political conversations	1.49 (1.42)	0.06 (1.07)	0.83 (1.48)	1.28 (1.73)	2.03 (2.43)	1.38 (1.73)	-2.18 (2.70)	4.95 (1.99)*	0.64 (2.11)
Political interest	-2.38 (1.88)	1.75 (1.33)	1.01 (1.91)	-4.68 (2.21)*	7.81 (3.11)*	-3.00 (2.17)	-10.49 (3.21)***	1.34 (2.61)	6.35 (2.61)*
Education (ref.: Low):									
- Medium	-1.71 (1.19)	0.18 (0.76)	0.36 (1.09)	1.59 (1.33)	-1.46 (1.95)	-2.91 (1.46)*	1.68 (2.02)	-0.26 (1.59)	6.31 (1.44)***
- High	-1.11 (1.26)	0.11 (0.82)	2.53 (1.16)*	-2.65 (1.24)*	-1.11 (2.04)	-4.10 (1.44)**	-2.09 (2.06)	-0.89 (1.65)	6.43 (1.42)***
Party ID (ref.: None):									
- CDU/CSU	2.45 (1.10)*	0.55 (0.70)	-1.36 (0.98)	0.47 (1.20)	-5.20 (1.61)**	1.96 (1.18)	4.40 (1.73)*	-2.45 (1.33)	2.45 (1.42)
- SPD	-0.21 (0.98)	0.12 (0.73)	-0.44 (1.02)	-1.17 (1.23)	5.38 (1.80)**	1.60 (1.16)	1.37 (1.77)	2.83 (1.52)	-1.29 (1.37)
- FDP	0.53 (2.98)	0.47 (2.28)	4.40 (3.07)	1.61 (3.56)	-4.02 (4.10)	0.77 (3.25)	-2.64 (4.71)	-5.32 (3.17)	1.01 (3.38)
- Greens	-0.59 (1.36)	-0.20 (1.02)	1.57 (1.42)	-3.23 (1.57)	6.66 (2.52)**	1.18 (1.73)	-4.29 (2.41)	-0.68 (1.95)	-0.88 (1.81)
- Left party	2.01 (2.02)	0.65 (1.41)	-1.45 (1.70)	0.84 (2.32)	3.81 (3.26)	1.08 (2.38)	4.73 (3.34)	6.72 (2.95)*	-4.29 (2.37)
- Other party	-2.10 (2.79)	4.07 (4.41)	8.86 (4.32)**	2.88 (4.54)	-0.77 (5.36)	6.22 (4.52)	-9.00 (4.97)	-1.68 (4.27)	-1.84 (4.08)
Religion (ref.: None/other):									
- Catholic	-2.22 (1.12)	-0.09 (0.91)	0.55 (1.03)	-1.45 (1.32)	1.20 (1.91)	0.27 (1.31)	-0.46 (1.92)	-1.35 (1.56)	2.35 (1.60)
- Protestant	-0.46 (1.08)	-0.28 (0.76)	2.11 (1.02)*	-0.54 (1.26)	3.14 (1.64)	0.65 (1.19)	0.36 (1.80)	-0.94 (1.41)	1.12 (1.41)
Church attendance	0.13 (1.29)	0.67 (0.95)	-3.37 (1.26)**	1.20 (1.43)	-2.90 (2.16)	-1.54 (1.51)	-0.31 (2.22)	0.50 (1.72)	-0.31 (1.76)
Class (ref.: Old middle class):									
- Worker	-1.26 (1.81)	1.87 (1.30)	-0.36 (1.89)	-1.93 (1.81)	-0.38 (2.75)	0.93 (1.89)	7.21 (2.77)**	8.04 (2.34)***	-4.81 (2.27)*
- New middle class	-1.79 (1.33)	0.34 (0.81)	-1.59 (1.19)	-1.52 (1.39)	0.12 (1.94)	0.31 (1.44)	5.09 (1.94)*	3.92 (1.42)*	-1.69 (1.63)
- Never gainfully employed	-2.28 (1.93)	0.13 (1.52)	-0.95 (1.76)	0.54 (2.59)	-3.23 (3.18)	0.98 (2.31)	4.48 (3.32)	1.59 (2.40)	-3.59 (2.58)
Union membership	2.28 (1.02)*	-0.28 (0.65)	1.40 (0.99)	-0.69 (1.07)	-0.55 (1.53)	-0.99 (1.05)	1.73 (1.65)	1.02 (1.23)	-0.87 (1.29)
Age (ref.: 18-39 years):									
- 40-64 years	0.44 (0.97)	0.54 (0.68)	-2.07 (1.17)	4.08 (1.05)***	7.54 (1.66)***	1.32 (1.26)	4.70 (1.86)*	-1.00 (1.51)	4.46 (1.36)**
- 65 years and older	4.23 (1.46)**	2.50 (1.02)*	-3.94 (1.35)**	5.35 (1.40)***	7.48 (2.17)***	0.32 (1.54)	3.44 (2.30)	-1.11 (1.88)	3.13 (1.74)
Gender: Male	-1.42 (0.83)	-0.08 (0.57)	0.77 (0.78)	-2.00 (0.97)*	-0.68 (1.34)	0.28 (0.94)	-2.88 (1.37)*	-1.07 (1.11)	4.68 (1.07)***
Region: East	1.05 (1.01)	1.26 (0.76)	-1.14 (0.84)	0.21 (1.13)	2.80 (1.64)	-0.58 (1.14)	9.33 (1.72)***	2.19 (1.40)	-1.76 (1.33)
AIC	1957.64	1007.65	1802.51	2456.68	4545.07	2564.11	4751.90	3315.58	3336.52
BIC	2280.75	1206.89	2098.83	2792.26	4757.89	2761.93	4949.97	3599.72	3577.49

Log Likelihood	-928.17	-472.59	-854.80	-1175.74	-2239.17	-1251.04	-2344.90	-1613.25	-1630.49
Deviance explained	7.06	5.21	11.72	6.08	2.96	3.88	4.36	4.66	3.96
Num. respondents	4356	4356	4356	4356	4356	4356	4356	4356	4356
Num. days	55	55	55	55	55	55	55	55	55

Notes: For non-parametric terms entries are the effective degrees of freedom (EDF). The Figure displaying the non-parametric effect is indicated in parentheses for the main variable when the EDF is larger than one as smaller values indicate that the term gets penalized out of the model. For parametric terms entries are average marginal effects (AME) together with standard errors in parentheses.
***p < 0.001, **p < 0.01, *p < 0.05

Table A 3: Outlet-specific agenda-setting effects

Level 2 **Level 1**	**Defence policy (2009)**	**Civil rights & liberties (2013)**
Non-parametric terms		
Perceived news content: Public TV news (28 lags)	0.00 (Fig.4)	3.00 (Fig.4)**
Perceived news content: Private TV news (28 lags)	0.54 (Fig.4)	0.00 (Fig.4)
Perceived news content: Quality newspaper (28 lags)	0.00 (Fig.4)	0.36 (Fig.4)
Perceived news content: Tabloid newspaper (28 lags)	0.00 (Fig.4)	0.27 (Fig.4)
Perceived news content: Local newspaper (28 lags)	4.00 (Fig.4)	0.03 (Fig.4)
Perceived news content: Online news (28 lags)	0.00 (Fig.4)	1.01 (Fig.4)*
Time trend	0.71 (–)	1.53 (–)***
Random effect	16.66 (–)*	9.33 (–)
Parametric terms		
Perceived ad content: Yes (means)	22.76 (8.90)**	4.65 (7.26)
Perceived ad content: Not asked	0.34 (0.80)	0.89 (0.93)
Perceived ad content: Yes	2.85 (3.82)	-0.73 (2.97)
Public TV news use	-0.19 (0.64)	-2.47 (1.58)
Private TV news use	-1.09 (2.09)	-1.78 (1.55)
Quality newspaper use	1.40 (1.54)	2.52 (1.84)
Tabloid newspaper use	1.62 (1.64)	-1.95 (3.31)
Local newspaper use	-2.50 (4.45)	-1.95 (1.45)
Online news use	-1.13 (1.46)	9.38 (2.96)**
Political conversations	0.34 (1.25)	0.84 (1.46)
Political interest	0.04 (1.67)	1.11 (1.92)
Education (ref.: Low):		
- Medium	-0.22 (1.04)	0.46 (1.08)
- High	0.15 (1.14)	2.64 (1.12)*
Party ID (ref.: None):		
- CDU/CSU	-0.73 (1.00)	-1.29 (0.98)
- SPD	-0.32 (1.00)	-0.42 (1.02)
- FDP	-1.88 (1.45)	4.93 (3.05)
- Greens	1.09 (1.48)	1.63 (1.41)
- Left party	6.98 (2.45)***	-1.40 (1.74)
- Other party	3.98 (4.17)	9.00 (4.11)**
Religion (ref.: None/other):		
- Catholic	1.48 (1.31)	0.62 (1.06)
- Protestant	0.88 (1.12)	2.00 (0.98)*
Church attendance	-1.97 (1.48)	-3.51 (1.27)**
Class (ref: Old middle class):		
- Worker	3.05 (1.60)*	-0.19 (1.99)
- New middle class	1.77 (1.00)	-1.59 (1.24)
- Never gainfully employed	3.20 (1.66)*	-1.07 (1.74)
Union membership	-0.22 (0.88)	1.50 (0.98)
Age (ref.: 18-39 years):		
- 40-64 years	1.25 (0.84)	-2.31 (1.16)*
- 65 years and older	3.80 (1.39)**	-4.17 (1.33)**
Gender: Male	1.57 (0.76)*	0.79 (0.83)
Region: East	2.07 (1.09)*	-1.25 (0.86)
AIC	1992.33	1801.16
BIC	2364.47	2152.31
Log Likelihood	-938.43	-845.54
Deviance explained	9.93	12.68
Num. obs.	4655	4356
Num. days	55	55

Notes: For non-parametric terms entries are the effective degrees of freedom (EDF). The Figure displaying the non-parametric effect is indicated in parentheses for the main variable when the EDF is larger than one as smaller values indicate that the term gets penalized out of the model. For parametric terms entries are average marginal effects (AME) together with standard errors in parentheses. ***p < 0.001, **p < 0.01, *p < 0.05