In the Spotlight: Analyzing Sequential Attention Effects in Protest Reporting

SEBASTIAN HELLMEIER, NILS B. WEIDMANN, and ESPEN GEELMUYDEN RØD

During waves of contention, international media attention can be of crucial importance for activists and protest participants. However, media attention is a scarce resource and the competition over news coverage is high. While some emphasize the agenda setting power of news outlets and argue that receiving coverage is determined by factors outside the protest movement, others suggest a dynamic relationship between media attention and activism where social movement organizations are assumed to have some agency to make it to the news. In this article, we contribute to the latter and analyze how protest can endogenously trigger more coverage. Building on insights from communication science, we argue that widely covered protests attract media attention and temporarily lower the selection threshold for subsequent incidents. Using fine grained data on anti regime protest in all authoritarian countries between 2003 and 2012, we find robust empirical evidence for this hypothesis. We also show that this effect becomes weaker and eventually disappears with increasing spatial and temporal distance from a highly salient event. These findings are important for research in contentious politics, since they allow us to gauge the extent to which protest activity on the ground may under certain circumstances be overreported in the media.

Keywords Media bias, attention effects, protest, authoritarian regimes

The recent years have seen a number of major protest events in non-democratic countries. In 2011, a series of protest episodes during the “Arab Spring” upset the political order of an entire region, and it continues to have severe consequences for world politics today and for the foreseeable future. Classic explanations of protest escalation over time and space focus on “cascades”—once protest has started, more people “jump on the bandwagon” and the movement grows (see, e.g., Granovetter, 1978). Autocratic environments arguably magnify the potential for protest cascades. In these regimes, the threat of repression leads to misrepresentation of political preferences, and overall, a lower frequency of political protest. However, once hardliners engage in public dissent, people reveal their true preferences and join the protests (Kuran, 1989).

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During such waves of contention, international media attention can be of utmost importance for activists and protest participants. Media coverage of protest events can help to mobilize bystanders, spread the movement’s claims, and legitimize the protest (Gamson & Wolfsfeld, 1993). Being in the media spotlight also raises the governments’ costs of using violence against protesters and can increase international pressure for domestic political change (Lynch, 2011; Wisler & Giugni, 1999). Finally, it can also have indirect effects on other countries by raising expectations about political reform. Still, media attention is a scarce resource and the competition over news coverage is high, which is why many political causes never make the news (Koopmans & Olzak, 2004). While existing research has shown that media-savvy social movement organizations can make strategic moves to capitalize on the current “mediation opportunity structure” (Cammaerts, 2012) to maximize coverage, the degree to which individual protest events can affect the media agenda is a matter of debate. Some scholars argue that external factors determine media attention to a protest, and that receiving coverage is a matter of “[…] being in the right place at the right time in a media attention cycle” (McCarthy, McPhail, & Smith, 1996, p. 494). Others suggest a dynamic relationship between media attention and activism, where social movement organizations themselves have some agency to influence whether their actions are covered in the media (Seguin 2016). In this article, we address this debate and ask whether media attention to protest events is dependent on coverage of similar events in the past.

Drawing on insights from communication science, we argue that news coverage of protest events is affected by sequential attention effects. Widely covered salient protests have the potential to function as so-called key events (Keplinger & Habermeier, 1995), increase attention, and lead to better coverage of subsequent events. Using a newly collected database on protest in autocracies that separates reports from events, we are able to estimate the strength and the scope of attention effects over time and space. Our research contributes to the literature in at least three ways. First, it adds a more dynamic dimension to our understanding of attention effects in news coverage of protest. Existing work has tended to focus on static conditions (e.g., how political context [Myers & Caniglia, 2004] or event characteristics [Herkenrath & Knoll, 2011] determine media attention). Our research, however, closes a gap in the extant literature (Wouters, 2013, p. 100) by analyzing how reporting is history-dependent, and how similar events receive different amounts of coverage depending on whether they occur in the wake of a highly salient incident. The findings in this article thus provide important insights into the endogenous dynamics of news reporting. Second, our analysis makes a methodological contribution and presents an innovative approach to produce fine-grained estimates for media attention effects in time and space. Third, using these estimates, we are not only able to assess sequential attention effects, but also their scope in space and time. We discuss the implications of our results for activists operating in repressive political regimes aiming to generate international media attention.

Our statistical results provide robust evidence for the existence of sequential attention effects in protest reporting: incidents in the wake of well-reported events consistently attract more media attention. We control not only for a number of event characteristics such as turnout or the level of violence, but also for unobserved country-specific factors and general trends in reporting patterns over time. These models constitute tough tests of the theoretical argument and greatly improve confidence in our results. The attention effect, however, is limited in magnitude and in scope: as salient events become more distant in space and time, their effect on subsequent ones quickly tapers off. The results also indicate that major events do not impact reporting intensity for events outside the country in which they occurred. This has important implications for the study of contentious politics. First, we show that high initial media attention opens a very short
window of opportunity for related protest events to get international attention. Activists would therefore have to act quickly to surf on the news wave and gain attention for their political cause. Second, our results have implications for studies using media-based protest data at a high temporal and geographical resolution. It is typically assumed that these data mirror the temporal trajectory of protest well. Our results, however, suggest that this does not apply in situations after major events have happened. Here, sequential attention effects can lead to over-reporting of protest in the media, and thus an overestimation of actual protest activity on the ground.

Literature Review

Political protest is a highly dynamic phenomenon. It is commonly argued that the occurrence of protest is dependent on recent and geographically proximate protest activity. Scholars resort to illustrative metaphors in order to capture these sequential dynamics, such as protest “cycles” (Tarrow, 1994), “waves” (Koopmans, 2008), or “cascades” (Granovetter, 1978). Activism begets activism, and protests can spread from one location to another both within and between countries (McAdam & Rucht, 1993). These spatiotemporal patterns of mass mobilization can have enormous effects on political outcomes, for example political reform and democratization (Hale, 2013; Weyland, 2014).

The sustained mobilization of protesters on the ground—often curtailed by state-led repression—is one thing. How real-world events are represented in news media is a different but equally important story. While the majority of protest events do not make it to the news (Smith, McCarthy, McPhail, & Augustyn, 2001), those that are covered by the media receive disparate amounts of attention. Analyzing determinants of media attention toward protest is important for two reasons. First, the quantity and quality of media attention toward protest campaigns and social movements can play a decisive role for their success. Indeed, media attention is a scarce and valuable resource for movements that can help to raise public awareness and apply pressure to political decision makers (Lipsky, 1968). Persistent publicity is commonly assumed to be crucial for achieving policy change in the long run (Moyer, MacAllister, Finley, & Soifer, 2001), and recent studies emphasize that the agenda-setting power of political dissent is mediated by news coverage (Walgrave & Vliegenthart, 2012). For instance, research shows that reported street protests resonate with political parties in Western European countries and affect parliamentary agendas (Vliegenthart et al., 2016). Moreover, there is evidence that, at the international level, insurgent movements market themselves strategically in order to receive international media coverage and gather political support from abroad (Bob, 2005). Second, dovetailing the first point, research on media attention helps us to understand the political impact of social movement activities and their ability to set the media agenda. For instance, if media attention is independent from previous coverage of similar events, social movements need not care about the precise timing of organizing protest. On the other hand, if there are dependencies in media reporting, social movements should try to exploit the temporary increase of media attention to their advantage.

Over the past decades, scholars have made great efforts to identify sources of media attention. Most of this literature, however, has sought to explain why some events make the news while others do not rather than the degree of media attention. Generally speaking, the amount of media attention devoted to a particular event depends on its “news value” for journalists and news consumers (Galtung & Ruge, 1965; Lippmann, 1922). The list of factors that determine whether a protest event is newsworthy is long. Most of these factors fall into one of three categories: event characteristics, political...
context, and media routines (Ortiz, Myers, Walls, & Diaz, 2005). In the following, we briefly outline existing research along these lines.

First, a number of quantitative studies have shown that event-specific factors determine media attention. Analyses of this kind are typically done by comparing a sample of events based on media data with a more accurate sample collected from other sources such as police reports or newspapers with smaller coverage areas. For instance, analyzing racial riots in the United States, Snyder and Kelly (1977) find that conflict intensity defined as the number of participants, the amount of violence, as well as the duration of conflict shapes the likelihood of media reporting. McCarthy et al. (1996) compare police records and news coverage of demonstrations in Washington and find that the demonstration’s size and the presence of a counter-demonstration increase media attention. Oliver and Meyer (1999) add that events receive more attention if they can be anticipated by journalists and occur on “slow” news days. In sum, protest events with a large number of participants, high levels of violence, and the involvement of prominent public figures are more interesting for news consumers and therefore receive more media attention (Barranco & Wisler, 1999; Herkenrath & Knoll, 2011).

Second, contextual factors have also been shown to influence newsworthiness. Myers and Caniglia (2004) analyze media coverage of riots in the United States during the 1960s, and find that the distance between the event location and the news outlet, event density, and city population size have a positive effect on media attention. When it comes to the international media and the coverage of protest events, there are noticeable geopolitical biases. Westerståhl and Johansson (1994) show that geographic proximity and commercial ties between the country of an outlet’s primary audience and the country where an event took place increase reporting. Similarly, cultural distances between countries and language affinity matter as well (Chang, Shoemaker, & Brendlinger, 1987). Analyzing data from six international newspapers that covered the protest events in the German Democratic Republic in 1989, Mueller (1997a) highlights the relevance of geographical proximity between news outlets and protest venue but also ideological biases between newspapers. In addition, media attention is tied to media freedom in the country of protest, since many autocratic countries attempt to restrict the flow of available information about dissent.

Finally, news infrastructure and media routines play an important role as well. Danzger (1975, p. 581) argues that the unequal distribution of news wire services in the United States substantially affects media coverage. More recent studies show that reporting rates are higher in cell phone-covered areas (Weidmann, 2016) and areas with access to the Internet (Croicu & Kreutz, 2016). Protest events in distant places are thus not only less relevant to journalists and news consumers but they are also less likely to be covered due to a lack of information.

The rich literature just summarized has broadened our understanding of the different processes that govern the news coverage of protest events. Many of those factors are stable predictors of media attention across a variety of empirical studies. At the same time, however, there is less consensus when it comes to the temporal and spatial dimension of media reporting. Some authors argue that despite the aforementioned biases, news reports accurately mirror the overall development of protest over time (Koopmans, 1998). In other words, each event should have the same chance of receiving media coverage conditional on event-specific and other bias-inducing factors. The selection criteria applied by the news media are thus consistent over time. This “representational” perspective (Mueller, 1997b) is backed by empirical evidence. For example, Barranco and Wisler (1999, p. 316) compare protest coverage in Swiss newspapers over 30 years and conclude that “the bias structure of newspapers displays an astonishing stability over time.” Similarly, McCarthy, Titarenko, McPhail, Rafail, and Augustyn (2008) find that event size, event sponsorship, as well as the number of arrested participants are stable predictors of media attention for protest events in Belarus.
Moving beyond these long-term perspectives, most scholars acknowledge the existence of media attention cycles (Downs, 1972). However, they perceive these cycles as more or less exogenous determinants of media attention: if protesters’ claims resonate with currently debated issues, the media is more likely to cover the events (McCarthy et al., 1996). For instance, Rafail, Walker, and McCarthy (2015) analyze front-page attention for protest events in the New York Times and find that an event’s location within the broader issue-attention cycle matters. This observation is in line with studies that see little opportunities for social movements to influence news coverage (Baylor, 1996); they can merely hope to strike a chord with the media. The reason for this is the strong agenda-setting power of the media (McCombs & Shaw, 1972) and their permanent search for stories and news. As Koopmans (2004, p. 73) notes, “[...] there are severe limits to the degree to which actors can influence the amount of visibility that is allocated to their messages.” Moreover, protest events compete with other events over media attention (Myers & Caniglia, 2004). Whether or not more newsworthy events such as natural disasters happen at the same time as demonstrations cannot be controlled by protesters. From this perspective, it is tempting to conclude that the media spotlight moves on quickly, and that sequential media attention should not be a major issue in protest reporting.

Other scholars, however, paint a slightly different picture. Oliver and Maney (2000, p. 495) contend that year-to-year changes in reporting “completely distort the apparent shape of the protest cycle.” Recently, Seguin (2016) argued that media attention to social movements is path dependent and best described as a positive feedback process. Once a movement has reached a certain threshold to be covered in the media, it will be featured recurrently in the news, independently of its actual activity. Initial attention to a certain issue can be the result of a purposefully planned event by a social movement organization (Moyer et al., 2001) or an unplanned scandal or crisis that opens up a window of opportunity (Molotch & Lester, 1974). In fact, this sequential dynamic of reporting was already suspected in the early theoretical work on news value theory (Galtung & Ruge, 1965, p. 67; Östgaard, 1965, p. 51). These contributions point to the potentially endogenous nature of attention effects, as protest events themselves can trigger media attention cycles. Overall, however, empirical evidence on the nature of attention cycles is scarce (Boyle, McCluskey, McLeod, & Stein, 2005; Ortiz et al., 2005). It seems obvious that we cannot ignore the possibility that the media spotlight stays on a certain issue for some time and that short-term attention effects distort the timeline of observed protest events. However, despite the eminent importance of media coverage for political activists, scholarly literature so far has been unable to gauge how pervasive these effects are, and what their temporal and spatial scope is. In the remainder of this article, we outline a theoretical and empirical framework that aims to fill this gap.

Theory

Short-term attention effects in media reporting have been studied extensively by media and communication science scholars. They characterize short-term reporting patterns in a very similar way: a single fateful event attracts a large amount of media attention, which results in temporarily reduced selection thresholds for related events. Subsequent events thus receive more attention than one would expect based on their inherent newsworthiness. After a short period of time, these attention effects fade and regular selection criteria apply. The pioneering work by Kepplinger and Habermeier (1995) shows how single events draw media attention to a particular issue. The authors argue that highly visible events, so-called key events, can trigger
a temporary change in the criteria for the selection of news. Although the frequency of related events remains constant, more events are covered and smaller events receive more attention. Wien and Elmelund-Prestekær (2009) find that on average a news wave lasts about three weeks. This framework has been applied to the study of media reporting on earthquakes (Koopmans & Vliegenthart, 2010), HIV infections and traffic accidents (Kepplinger & Habermeier, 1995), immigration (Vliegenthart & Boomgaarden, 2007), and attacks against asylum seekers (Brosius & Eps, 1995). All studies find robust evidence for overreporting after highly dramatic events.

We argue that media attention for protest and other collective action events follows a very similar logic. Some protest events, which we refer to as salient events, attract an overwhelming amount of media attention, be it due to their size, escalation of violence, the involvement of prominent figures, or the innovative use of social movement tactics. Examples of widely covered protest events include the Andijan massacre in Uzbekistan in 2005 (163 reports), the shooting of 42 protesters in Yemen in 2011 (120 reports), or the assassination of Benazir Bhutto during a rally in Pakistan in 2007 (98 reports). Following the logic of news waves and key events, these highly publicized events can temporarily change the selection criteria and increase the coverage of subsequent protest events. In other words, subsequent events do not receive more coverage because of their inherent newsworthiness, but because they occur in temporal proximity to salient events. This phenomenon has been called “resonance effect” (Koopmans & Vliegenthart, 2010) or “prototyping” (Brosius & Eps, 1995).

Increased attention for related events is likely to be driven by consumers’ demand for news and the availability of information. Consumers prefer news that is compatible with what they know and how they perceive the world (Koopmans & Vliegenthart, 2010). Empirical evidence shows that news agencies that operate in a democratic context are biased toward political change and revolution (Baum & Zhukov, 2015). Initial, widely reported protests in authoritarian regimes can therefore spur more interest in subsequent events because news consumers want to see how protest evolves and how it impacts the political landscape in a given country. The protest abroad reaches the status of what Hilgartner and Bosk (1988) call a “social problem” in the different arenas of public discourse. In turn, news outlets respond to this increased demand by producing news reports about related events in the same country. In many cases, this also involves sending journalists to protest venues, which increases the available amount of information that can be reported. The investment made by news outlets to gather information about the initial dramatic event also reduces the costs for follow-up reporting. Reporting about protest events is thus sequential in the sense that previous media attention affects subsequent reporting.

In line with the wavelike conception of news reporting, we expect that this effect decreases over time. Immediately after the salient event occurs, news consumers’ interest in related protest events peaks, which explains why subsequent related events receive higher coverage. However, protest loses its newsworthiness over time as the connection of subsequent events to the salient event becomes weaker. News consumers lose interest as “the need for continuous novel drama” (Hilgartner & Bosk, 1988, p. 67) is not met and other issues win the competition over media attention. Initial enthusiasm gives way to public indifference as it turns out that the political conflict that caused initial mass mobilization is unlikely to be resolved in the short run (Gottlieb, 2015). We thus expect that events that occur in the direct wake of a salient event receive more media attention than events that occur at later points in time. In addition to this temporal aspect, we believe that geographic proximity matters. Subsequent events are more likely to be related to past
salient events if they are geographically close or if they occur in the same city, the same country, or even the same world region. It is not necessary that events are really connected; they simply need to fit the dominant narrative about ongoing political events or waves of protest. Thus, the effect of salient events on subsequent reporting should decrease as the geographic distance between the salient event and related events increases. The preceding discussion yields the following hypotheses about sequential attention effects in protest reporting:

**H1:** *Ceteris paribus*, the occurrence of salient events increases media coverage of subsequent protest events.

**H2:** The positive effect of salient events on subsequent media coverage decreases over time.

**H3:** The positive effect of salient events on subsequent media coverage decreases with geographic distance from the salient event.

**Research Design**

In order to analyze sequential attention effects in protest reporting, we rely on the Mass Mobilization in Autocracies Database (MMAD). The MMAD contains data on reports of protest events in all authoritarian regimes between 2003 and 2012. The database relies on news reports of protest from three news agencies: Associated Press (AP), Agence France-Presse (AFP), and BBC Monitoring. Those news agencies are globally operating networks that produce news reports and sell them to news organizations such as print or broadcast media (Öberg & Sollenberg, 2011). The relevant reports were selected based on a keyword search, using generic terms such as “protest,” “riot,” “demonstration,” etc. From each report, the necessary information about the protest event (such as date, location, turnout, the protest issue, and the actors involved) was extracted by human coders. Reports mentioning the same anti-regime protest in the same city and on the same day were then aggregated into observations of individual protest events (Weidmann & Rød, 2015). For numeric variables such as turnout, the aggregated number is simply the average across all reports, while for categorical variables such as the level of participant violence, we use the most extreme (the most violent) level across the reports. More detailed information about the coding procedure and the variables contained in the data set can be found on the MMAD website at [http://mmadatabase.org](http://mmadatabase.org).

This data collection is an ideal candidate for the study of short-term reporting dynamics for several reasons. First, it provides fine-grained information about protest events, referencing each event to a particular city and a single day. Second, it relies on information from multiple international news agencies and allows us to compare reporting patterns for a large sample of countries. Third, and most importantly, since the MMAD distinguishes between protest events and the reports covering these events, we can measure media attention by counting the number of event reports that cover a particular protest event. At the same time, conducting our analysis with reports from news agencies constitutes a tough test for our argument. Unlike newspapers, these agencies face very few space constraints, which means that attention effects will be much less pronounced. They are also less selective because they “cater to a worldwide audience of news professionals so striving for neutrality and objectivity in reporting makes good business sense” (Öberg & Sollenberg, 2011, p. 49). This means that the attention effect we estimate
based on our data constitutes a lower bound, and is likely to be even higher for printed newspapers.

Our final data set for the analysis consists of 11,710 anti-regime protest events in 67 authoritarian countries. The basic unit of analysis is the individual event. Our outcome of interest is the amount of media attention for any protest event, measured as the number of news reports from the selected agencies the event receives. We call this variable reporting intensity and use it as our dependent variable throughout the statistical analysis. One challenge for our study is the lack of an external data source to assess the impact of sequential attention effects on the selection of news. Ideally, we would compare our sample of events to the full universe of cases and observe which events are covered in the news and which ones are not. For obvious reasons, this complete sample of protest events is not available and all events in our sample were newsworthy enough to be reported by an international news agency. This is why we approximate media attention by counting the number of articles per event, as others have done before (Ahern & Sosyura, 2014; Martin, Rafail, & McCarthy, 2017; Wilkes & Ricard, 2007). Figure 1 shows the distribution of reporting intensity of protest events in our sample. Most events receive only one report and the vast majority of events fall in the range between one and 10 reports. The mean reporting intensity per event (1.9) is influenced by a small number of outliers. An example of such a broadly covered event is the brutal crackdown on protesting Buddhist monks in Myanmar in September 2007 that received 82 reports.

In our sample of protest events, we need to identify those protests with the potential to trigger a news wave, in line with the theoretical argument. The defining criteria for these salient events is that—for whatever reason—they attract media attention. This is why we follow Kepplinger and Habermeier (1995, p. 373) and operationalize salient events as events with exceptionally high coverage. By labeling those events “salient events” we do not imply that those events automatically trigger a news wave; rather, these events stand out because of the level of coverage they themselves receive. For the main analyses, we code events that received more than five reports by the selected news agencies as salient events. This leads to a total of 510 salient events in our sample, which roughly corresponds to the top 5% of all events in terms of media coverage. Our approach is similar to the one by Seguin (2016, p. 7), who identifies media attention cascades by the number of articles per social movement organization. We acknowledge that this threshold is somewhat arbitrary, which is why we conduct a

Figure 1. Distribution of reporting intensity measured as the number of events per protest event (N = 11,710). X axis truncated at 10 for purposes of readability.
number of robustness tests using different thresholds. We also consider alternative definitions of salient events based on the event size and the presence of violence.

Having defined the salient events in our analysis, we need to construct independent variables measuring whether a given protest event occurs in the wake of one of these salient events. This allows us to test whether protest events that occur shortly after those events receive higher levels of media attention. To do so, we create dummy variables that identify observations that were preceded by at least one salient event in a predefined period of time. We set the temporal cutoff value at three weeks (21 days), which is the average duration of a news wave (Wien & Elmelund-Præstekær, 2009). Again, we conduct additional analyses to show that our main results do not depend on this particular choice of threshold (see online supplemental Appendix, Table A1). According to the theoretical argument, we expect that attention effects should be more or less pronounced depending on whether salient events happen in the event’s proximity. Therefore, our dummy variables differ depending on whether the preceding salient event occurred in the same city, the same country, or the same world region in the previous three weeks. We add another dummy variable that indicates whether or not a salient event has occurred recently anywhere outside of the region and expect that the occurrence of such a distant event should not influence reporting intensity. In line with our hypotheses, these variables allow us to test attention effects by taking into account their temporal and spatial dimensions.

We add a number of additional variables to control for event characteristics and context. First, we control for newsworthiness by including information on the number of participants, the level of violence exerted by both security forces and protest participants, and whether the protest took place in the country’s capital. Controlling for event characteristics is crucial in order to separate sequential attention effects from idiosyncratic ones (i.e., how an event’s own characteristics determine the media attention it receives). Therefore, the control variables correspond to a first-order investigation of these characteristics. Second, we need to take into account that the relationship between protest and media reporting can be self-reinforcing. In particular, dramatic events can both lead to more media coverage as well as higher political mobilization (which then results in increased protest activity). This dynamic development of events and media reporting will intensify the news wave with the result that the overall amount of newsworthy events that can be reported increases. If we fail to take the reinforcing relationship into account, it would bias the estimate for our main independent variable (recent salient event) upward. The fact that our measurement of media attention by construction is tied to the occurrence of protest events fuels this issue since it prevents us from building a panel data set and applying statistical methods to model the potentially reciprocal relationship between protest events and media attention, such as Poisson autoregression (Fogarty & Monogan, 2014). In our models, we employ two specifications to reduce concerns that a mutually reinforcing relationship between media coverage and protest events affects our results. First, we control for event density (Myers & Caniglia, 2004), defined as the number of (non-salient) events in the previous 21 days. This variable takes into account that a highly dramatic event can lead to increased protest activity, and ensures that an effect of recent salient events on media attention is not due to failing to account for the number of subsequent protest events (omitted variable bias). In addition, we specify our models with different fixed effects, taking unobserved heterogeneity into account. This reduces concerns that a reinforcing relationship or a general reporting trend in specific countries, years, or even in particular country-years drives our results, because they receive more or less media attention due to the “type” or “nature” of the protests (e.g., the Arab Spring in 2011).
In the next section, we present descriptive evidence and the main results of the statistical analysis using zero-truncated negative binomial regression models.

**Results**

Before moving to the regression results, we first provide descriptive evidence for the hypothesized relationship between reporting intensity and the presence of salient events.

**Descriptive Results**

In Figure 2, we divide our sample of protest events into subgroups based on the dummy variables just described: events that were preceded by a salient event (light gray surface) in the previous 21 days in the same (a) city, (b) country, (c) world region, or (d) any other country outside the region in the full sample of authoritarian countries, and those that were not preceded by a salient event (dark gray surface). Figure 2 displays the distribution of our dependent variable, reporting intensity, for the different subgroups using smoothed kernel density estimation for the purpose of easy visualization. A higher density for given values of reporting intensity indicates a higher concentration of events with similar reporting intensity.

![Figure 2](image)

**Figure 2.** Density plots for the distribution of reporting intensity comparing events with a recent salient event (light gray surface) and those without (dark gray surface). The four panels are based on recent salient events in the same city (top left), the same country (top right), the same region (bottom left), and outside the region (bottom right). Dashed lines represent group means.
intensity indicates that more observations with this particular value are in the grouped sample. We also add the mean reporting intensity for each subgroup (dashed lines). The group comparisons reveal some stylized patterns in the data. First, if we compare the areas under the curves at the city level (top left panel), media interest is lower for events that did not happen in the wake of a salient event. The mean reporting intensity also differs significantly between the two groups (1.7 and 3.4). Second, at the country (top right panel) and regional level (bottom left panel), we see smaller differences between the groups; the surfaces overlap to a larger extent. While there is some indication that the likelihood of receiving very low numbers of reports is higher for protests without a recent salient event, the distributions of reporting intensity as well as the group means are very similar. Finally, differences between subgroups further decrease as we zoom out. The distribution of reporting intensity between cases that occur in the wake of a salient event outside the region and those that do not (bottom right panel) is almost the same. These descriptive patterns serve as a valuable starting point for our analysis and give some indication of the spatial dimension of attention effects. However, they cannot tell us whether the observed difference is simply due to idiosyncratic characteristics of protest events (events after salient events could simply be bigger or more violent and thus more newsworthy), which is why we conduct a more rigorous analysis using regression modeling.

**Main Regression Results**

Throughout the subsequent analysis, we use zero-truncated negative binomial models (Zeileis, Kleiber, & Jackman, 2008). This choice was guided by three properties of our data and the underlying data-generating process. First, we are dealing with count data (the number of reports per protest event). In line with recent methodological recommendations (Hilbe, 2014; Ohara & Kotze, 2010) and recent applications to media data (Ahern & Sosyura, 2014), we do not log-transform our dependent variable. Second, the dependent variable can only take values greater than zero. The sample of protest events in MMAD is by construction limited to events that were newsworthy enough to receive at least one news report. Although we do not have information on events that did not make it to the international news, we assume that reporting for those events follows a very similar logic to the ones in our sample: they simply did not pass the threshold for being reported. Therefore, we use zero-truncated models, an extended version of count models that excludes zeros (Hilbe, 2014). Ignoring this feature of the data would lead our models to predict outcomes outside the range of possible values. Third, there is evidence of over-dispersion in reporting intensity, which is why we prefer the negative binomial model over the Poisson alternative. This observation is not surprising, since we expect reporting to cluster heavily on major protest events. In order to account for unobserved heterogeneity, we include dummy variables for countries, years, and in some models country-years.

Table 1 summarizes our main regression results, with reporting intensity being the dependent variable in all models. The first model serves as baseline model and includes event-specific determinants of reporting intensity as well as country and year dummies. By including these dummy variables we estimate an additional parameter for each country and each year to account for different baseline levels of media attention and trends of reporting routines over time. The results confirm findings from previous studies and satisfy expectations derived from classical news values theory: Protest events where participants or security forces use violent means receive significantly more media attention than peaceful events. The same applies to events with a larger number of participants and events that take place in a country’s capital.
### Table 1
Determinants of media attention for anti-regime protests

<table>
<thead>
<tr>
<th>Salient events (dummies)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recent salient event in same city</td>
<td>.295***</td>
<td>.192***</td>
<td>–.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recent salient event in same country</td>
<td>.292***</td>
<td>.163**</td>
<td>–.076</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recent salient event in same region</td>
<td>–.004</td>
<td>–.013</td>
<td>–.032</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recent salient event outside region</td>
<td>–.017</td>
<td>–.016</td>
<td>.003</td>
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<td>.003**</td>
<td>.003**</td>
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<td>.006***</td>
<td>.004**</td>
<td>.002*</td>
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<td>Damages/clashes</td>
<td>.446***</td>
<td>.446***</td>
<td>.428***</td>
<td>.453***</td>
<td>.428***</td>
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<tr>
<td>People injured</td>
<td>.873***</td>
<td>.880***</td>
<td>.856***</td>
<td>.836***</td>
<td>.854***</td>
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<tr>
<td>People killed</td>
<td>1.840***</td>
<td>1.834***</td>
<td>1.781***</td>
<td>1.624***</td>
<td>1.790***</td>
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<th>(1)</th>
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<td>Presence w/o intervention</td>
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<td>.707***</td>
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<td>.654***</td>
<td>.694***</td>
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<td>Physical intervention</td>
<td>1.178***</td>
<td>1.172***</td>
<td>1.151***</td>
<td>1.150***</td>
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<td>Lethal intervention</td>
<td>1.540***</td>
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<td>1.365***</td>
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<td>.879***</td>
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<td>More than 1,000</td>
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<td>1.418***</td>
<td>1.421***</td>
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<td>More than 10,000</td>
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<td>1.903***</td>
<td>1.903***</td>
<td>1.904***</td>
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<tr>
<td>Protest in capital</td>
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<td>.781***</td>
<td>.800***</td>
<td>.783***</td>
<td>.784***</td>
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</tbody>
</table>

(Continued)
As a next step, we include different variables capturing recent protest activity (short of salient events) in Model 2. Controlling for event density is particularly important in order to rule out that a generally higher level of protest in close temporal sequence—as it typically occurs around salient events—leads to more media attention for subsequent events. We therefore count the number of recent protest events per geographical unit, excluding salient events. The results show that the number of recent events significantly increases reporting intensity of related protest events in the same city, country, and region. Interestingly, however, contentious activities far away from the protest location have the opposite effect. This finding suggests that protest events around the globe compete for media attention: Large-scale contention in one region can attract media attention and reduce the available news space for events in other parts of the world.

Finally, we estimate the effect of our main independent variables of interest and add dummy variables that indicate whether a given event occurs in the wake of a salient event (Model 3). It is important to note that the dummies do not overlap: for example, the country-level dummy captures salient events elsewhere in the country, but not in the same city, since the latter is covered by the city-level dummy. Our results show a statistically significant effect of salient events on subsequent reporting at the city and the country level. More precisely, the presence of a recent salient event increases media attention on average by 34% if the salient event occurred in the same city, and by 34% if the salient event took place in the same country (holding all other predictor variables constant). We do not find statistically significant effects of recent salient events at the regional level or beyond. As an illustration of the effect of salient events in a real-world case, consider the protests in Qorasuv, Uzbekistan, on May 20, 2005, as an example. As AFP and BBC Monitoring report, about one thousand

<table>
<thead>
<tr>
<th></th>
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<th>(3)</th>
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<td>Yes</td>
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<td>Year dummies?</td>
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<td>24,992</td>
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Notes. Dependent variable: Number of reports per event. Reference categories for factor variables: Missing information or no violence/no presence/less than 100 participants. “Recent” refers to the past 21 days (except Model 5, where it means 22–42 days). In Model 5, we also control for the presence of salient events and the number of regular events within the past 21 days, but omit the coefficients from the table for the sake of readability.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$. 

As a next step, we include different variables capturing recent protest activity (short of salient events) in Model 2. Controlling for event density is particularly important in order to rule out that a generally higher level of protest in close temporal sequence—as it typically occurs around salient events—leads to more media attention for subsequent events. We therefore count the number of recent protest events per geographical unit, excluding salient events. The results show that the number of recent events significantly increases reporting intensity of related protest events in the same city, country, and region. Interestingly, however, contentious activities far away from the protest location have the opposite effect. This finding suggests that protest events around the globe compete for media attention: Large-scale contention in one region can attract media attention and reduce the available news space for events in other parts of the world.

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protesters gathered in the small town close to the Kyrgyz border to demand freedom for rebel leader Bakhtiyor Rakhimov, who had started an uprising against the government and was kept prisoner by local authorities. The event occurred a few days after a brutal government crackdown on protesters in the nearby town of Andijan, in which hundreds of protesters were killed. According to our model, this event has a predicted number of 2.55 reports. However, if this event had not occurred in the wake of a salient event in the same country (in other words, setting the corresponding dummy variable to 0 in our model), the predicted reporting intensity is only 2.15 reports. Given the generally low number of reports about protest events, this is a sizable difference, and the preceding salient event leads to an increase in reporting by about 20%.

Unobserved heterogeneity that goes beyond constant country-specific and global time-specific factors such as a country’s geopolitical importance is a clear challenge since our data set is limited to event-specific information and disregards other structural factors that vary over time. In order to increase confidence in our results, we add more fine-grained fixed effects by including country-year dummies in Model 4. This modification allows us to net out conditions that are specific to each country-year. It turns out that our results do not change substantially. However, our results might also be partly driven by omitted variable bias, meaning that an unobserved factor such as the nature or the tactics of protest could be driving both high initial media attention for a protest event (thus making it a salient event) and increased media attention for subsequent events. In our view, this is unlikely given that we already include different types of fixed effects (see earlier discussion), which would pick up any effect specific to a particular protest campaign in a country. Still, we conduct an additional test. In Model 5, we vary the temporal window of what constitutes a recent salient event. The dummy variables indicate the presence of a salient event in the past 22 to 42 days and the controls for event density count the number of regular events in the same time frame. Put differently, we move the time window so that our indicators do not pick up very recent events but those that happened some time ago. We control for the presence of salient events and the number of regular events within the past 21 days as well but omit the coefficients from the table for the sake of readability. As Model 5 shows, the indicators for the presence of a salient event are not statistically significant. This result supports our understanding of the rapid decline of media interest after a salient event has happened.

Robustness Tests

We perform a number of additional robustness checks for our main analysis. First, we vary the sample used for the analysis. Throughout our main analysis, we have used the full sample of protest events including all events that we identified as salient events. In order to make sure that our results are not driven by this modeling choice, we re-run all our main models with the salient events excluded from the sample (online supplemental Appendix, Tables A2 and A3). As expected, the effect sizes of all variables are slightly reduced due to the narrower range of our dependent variable. However, our main results remain unchanged; the recent occurrence of a salient protest event significantly increases reporting intensity.

We also test whether our definition of salient events as those with more than five reports and the choice of a particular temporal window (21 days) drives the results. We therefore run additional models for which we vary the cutoff value for events to qualify as salient events (online supplemental Appendix, Table A1, Models A1 and A2) and the definition of the temporal window for the presence of a recent salient event (online
supplemental Appendix, Table A1, Models A3 and A4). Our main findings are robust to different operationalizations of the independent variables.

As a final robustness check, we use different model specifications to check if our results are dependent on model choice. Besides the zero-truncated negative binomial model, we also run a standard Poisson and negative binomial model as well as a zero-truncated Poisson. Figure 3 compares the goodness of fit of the different models using so-called hanging rootograms (Kleiber & Zeileis, 2016). The black line depicts the expected counts as predicted by the different models and the gray bars represent the observed counts in our data set. Bars above the zero line indicate overprediction and bars below the line point to underprediction. Simply put, smaller gaps between the gray bars and the horizontal line at zero indicate a better model fit. As expected, the standard models without zero truncation predict a large number of zero reports, which makes little sense given the structure of the data. Comparing zero-truncated Poisson and negative binomial shows that the negative binomial model handles overdispersion in the data better and is the appropriate choice for the data at hand. Finally, we run our main models using OLS regression with logged values of reporting intensity as the dependent variable to address concerns about fixed effects in nonlinear (count) models such as the ones presented earlier. Again, the substantive conclusions from these models are very similar (see Table A4 in the online supplemental Appendix). To sum up, the first part of the empirical analysis yields robust evidence for the existence of sequential attention effects in protest reporting.

The Nature of Salient Events

As we described earlier, we rely on previous research and define salient events as those that receive exceptionally high levels of coverage (Kepplinger & Habermeier, 1995). This approach ignores the question of what determines high levels of coverage in the first place, and a detailed analysis of this question is outside the scope of this article. However, one could
expect that salient events are simply those that are exceptionally large in terms of turnout or are characterized by high levels of violence. If this is the case, a movement’s means to increase international attention to their cause would be limited. Essentially, increasing the number of participants or the level of violence would be the only means to improve coverage of subsequent events. This would go counter to findings in previous research that highlights the importance of innovative tactics, framing, and the involvement of prominent leaders for media attention (Andrews & Caren, 2010; Carroll & Ratner, 1999; Meyer, 1995).

Are salient events simply those protest events that are large or violent? In order to find out, we repeat our analysis using alternative definitions of salient events (see Table A5 in the online supplemental Appendix). Using the same variables and model specification as in Model 3 in the main table, we define salient events as those protests where participants and/or security agents were killed (Model A20), large events with more than 10,000 participants (Model A21), and events with more than 1,000 participants accompanied by lethal violence (Model A22). Interestingly, we do not find any effect of the occurrence of these alternative salient events on subsequent reporting if they occur in close temporal or spatial proximity (i.e., in the same city or the same country). Rather, we find a significant decrease of reporting intensity if such a large or violent event occurred in the same world region. Together with our main findings discussed earlier, these results imply that violence and event size alone cannot explain the occurrence of sequential media effects. Rather, what matters is that a certain event is widely covered in the media, which is partly, but not exclusively, determined by size and turnout. In other words, movements have other options than escalation to trigger attention to their cause. Our results also provide some evidence that large and violent events can absorb media attention so that subsequent events in the same region are disadvantaged in the competition for coverage.

What are these alternative factors that can affect media attention to salient events? In the absence of information about additional event characteristics in our data, this is difficult to analyze systematically. However, a cursory look at those events that are neither violent nor large but received considerable media attention is insightful. For instance, the Russian protest movement Strategy 31, which organized rallies every thirty-first day of the month to demand the right of free assembly as laid down in article 31 of the Russian constitution (Toepfl, 2013), was frequently featured in the news and several of the rather small events attracted a large amount of media attention. The nonviolent nature of the protest, the fact that it took place at Moscow’s historic Triumfalnaya Square, and the frequent dispersal of peaceful activists by security forces can probably account for the events’ newsworthiness. Other prominent salient events according to our initial definition were the demonstrations in Myanmar in August 2007 organized by the well-known 88 Generation Students Group or the rare protests in Saudi Arabia surrounding the first municipal elections in 2003. These examples show that besides violence and size, novelty, tactical innovation, as well as the involvement of prominent figures are factors that can put protest events in the media spotlight. This discussion highlights that future research should focus on the potential agency of social movement organizations in triggering salient events.

**Effects Over Space and Time**

Our main findings indicate that the effect of salient events is particularly strong at the country level. We therefore take advantage of the granularity of our data in order to analyze attention dynamics within countries. We reduce our sample to all observations where a salient event actually occurred within the past year \((N = 8,361)\) to avoid left-
truncation in the data. For each event, we calculate the temporal distance (in days) to the most recent salient event and the geographical distance (in kilometers) to the nearest salient event. We thus replace the coarse dummy variables from the first models with a more accurate measurement of distance to highly covered salient events. As a first approach, we then predict the number of reports per event as a function of temporal and geographical distance. In order to avoid making assumptions about the functional form between the three variables, we rely on local polynomial regression fitting (Cleveland, Grosse, & Shyu, 1992). Figure 4 shows the local trend surface for this relationship with the number of reports per event being the dependent variable. In the figure, the left vertical axis shows the reporting intensity, the top left axis the days since last salient event, and the top right axis the number of kilometers to the last salient event. The 3D plot allows us to examine distance in time and space simultaneously. As expected, reporting intensity is highest for events that occur close to salient events in both space and time: reporting decreases as the temporal and spatial distance increases. For instance, where temporal and spatial distance is zero, the predicted reporting intensity is 3.4. Where temporal distance is zero and spatial distance is 100 kilometers, it reduces to 2.1. Where spatial distance is zero and temporal distance is 60 days, the predicted reporting intensity is 2.0. Finally, where spatial and temporal distance is 50, reporting intensity is as low as 1.4.

To further assess these results, we estimate a second series of zero-truncated negative binomial models on this subsample, for which we include the natural logarithm of temporal and spatial distance as predictors of reporting intensity (Table 2). We chose the logarithmic transformation for the independent variables based on the apparent nonlinearity displayed in Figure 4. Model 6 is again the baseline model with event-specific characteristics and fixed effects. We subsequently include the spatial and temporal measurements of distance to salient events separately (Models 7 and 8), and finally together in

**Figure 4.** Nonparametric regression of reporting intensity on minimal temporal and spatial distance to salient events (n 8,361). The plot shows the predicted reporting intensity depending on the spatial and temporal distance to the most recent salient event.
## Table 2
### Within-country determinants of media attention

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<td>-.119***</td>
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<td>-.043**</td>
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<td>(.059)</td>
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<tr>
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<td>(.082)</td>
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<td>(.082)</td>
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<tr>
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<td>(.045)</td>
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<td>(.056)</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
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<td>8,361</td>
<td>8,361</td>
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<td>19,214</td>
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Notes. Dependent variable: Number of reports per event. Reference categories for factor variables: Missing information or no violence/no presence/less than 100 participants.

** ** \( p < 0.01 \). *** \( p < 0.001 \).
Model 9. We find a statistically significant negative effect of the elapsed time since the last salient event and the spatial distance on reporting intensity. The fact that the coefficients for both predictors are almost the same when treated separately and together in one model makes us confident that we were able to distinguish the temporal and spatial dimension well. To give a more intuitive interpretation of our results: If a given event occurs 30 days after a salient event, it receives on average 36% less reporting. For events with a distance of 100 kilometers to the salient event, reporting decreases on average by 18%. In the final analysis (Model 10), we further reduce our sample to all events that were preceded by a salient event in the previous 21 days and we exclude the salient events from the analysis. For each event in this subsample we add information on the amount of media attention to the most recent salient event. We control for the amount of media attention to the most recent salient event to show that the magnitude of initial media coverage is not decisive for subsequent reporting. We still find significant negative effects for our measures of spatial and temporal distance. Our results also hold when we exclude all salient events from the analysis (online supplemental Appendix, Table A3).

In sum, our results indicate that media attention for protest events is strongly determined by coverage of previous events. In line with our theoretical expectations, we find that salient events increase media attention for subsequent protest events (H1). We also find that this effect is limited by time (H2) and space (H3). Protest events that take place in the direct aftermath of another widely publicized protest event in the same city or in the same country receive a significantly larger amount of media attention. However, we do not find any effect of salient events beyond the country level.

We get similar results when we zoom in on the country level and use fine-grained data to measure the relationship between salient events and media attention for protest events. Our results thus provide robust evidence that media reporting on protest events is influenced by sequential attention effects. The findings imply that the occurrence of salient events opens up a short window of opportunity in which events with a lower inherent news value have better chances of being covered. Moreover, researchers cannot assume selection criteria for protest reporting in the international news to be stable over time. Instead, we should acknowledge the highly dynamic nature of reporting, although the overall spatial and temporal scope of these attention effects is limited.

Conclusion

We set out to shed light on the temporal and spatial dynamics of media attention to protest events. Our results provide strong support for the existence of sequential attention effects in protest reporting. Using fine-grained spatial and temporal data on protest events and their media coverage, we find that the presence of a recent salient event increases media attention for subsequent events if they occur in the same city or in the same country. We do not find evidence for attention effects beyond the country level, suggesting that they have clear spatial boundaries. With regard to the temporal dimension, our results show that attention effects become weaker as more time since the last salient event elapses.

These path dependencies in media attention have important implications not only for activists and the political outcomes of protest but also for the growing number of researchers analyzing temporally and geographically fine-grained data derived from media reports. First, if media attention to political protest is dependent on previous widely covered events, this might provide opportunities for protest organizers to use...
the momentum and organize more events that make the international news. As we have shown in our analysis, salient events are not simply those with high turnout or high levels of violence. Rather, movements can use new tactics to draw international attention, which subsequently increases the news coverage they receive. Second, for scholars working with media-based event data, temporal stability of media attention has typically been a key assumption in quantitative studies of protest. We have shown that this assumption rarely holds, especially if we rely on international media sources. Particularly if the number of protest events is the dependent variable, attention effects might lead to overreporting of events for some time after a salient event. We welcome efforts to statistically control for attention effects, such as measuring overall media attention for a country in a given country-year (Ruijgrok, 2017; Soule, McAdam, McCarthy, & Su, 1999). At the same time, we believe that the effectiveness of such tools needs to be tested given the discontinuous spatial and temporal nature of attention effects.

At the same time, our analysis has several limitations, which can be addressed in further work. First, our study measures media attention by the reporting intensity an event receives. It is likely that salient events also influence whether subsequent events are covered at all, not just how much coverage they receive. For obvious reasons, our database is not suitable for this kind of analysis, since non-reported events are not recorded. However, it is possible to test this in a case where “ground truth” about protest dynamics is available that has not been generated from media reports (for a related example, see Weidmann [2016]). Another question we cannot answer is whether attention cycles are issue-specific, as earlier research suggests (Oliver & Maney, 2000). In other words, do salient events only lead to increased subsequent media attention for events related to a similar issue? While our data contain some information about protest issues, this information would have to be standardized before being amenable to systematic analysis. This more detailed information could also be used to trace better the mechanisms accounting for the sequential attention effect we observe in our data. What determines whether media attention stays on a particular case? Are newsroom dynamics responsible for the effects we see? We hope that future research addresses questions of agency in the attention dynamics we have studied in this article.

Notes

1. Throughout the article, “salient events” are always protest events. While it is conceivable that other political events (e.g., assassinations, elections) can increase subsequent reporting, an examination of such events is beyond the scope of this article.

2. We do not attempt to provide a comprehensive overview of this literature here. For a more complete account of studies on selection bias, see Earl, Martin, McCarthy, and Soule (2004) and Ortiz et al. (2005).

3. For instance, Geiß (2011, p. 272) defines news waves as “a sharp and continuous increase of reporting on a specific issue for a limited period of time.” In a more encompassing attempt to conceptualize short term reporting dynamics, Vasterman (2005, p. 515) defines media hype “as a media generated, wall to wall news wave, triggered by one specific event and enlarged by the self reinforcing processes within the news production of the media.” Boydstun, Hardy, and Walgrave (2014, p. 511) developed the concept of media storms, defined as “an explosive increase in news coverage of a specific item (event or issue) constituting a substantial share of the total news agenda during a certain time.”

4. The number of reports was calculated by counting mentions of the events in news reports by Associated Press, Agence France Presse, and BBC Monitoring.
5. See Weidmann and Rød (Forthcoming, Chapter 4) for more information on the sample of
countries, which is based on the coding by Geddes, Wright, and Frantz (2014).
6. The count of event reports for a particular protest event does not include distant reports (e.g.,
normal annual memorial pieces). The MMAD has coding rules in place to avoid reports about protest
events that happened a long time ago. The raw data reveals that, on average, there is a three
day delay between an event and the publication of a report about it.
7. We use the definition of world regions from the World Bank’s World Development Indicators
8. We also ran a series of models using OLS regression with fixed effects on logged values of
reporting intensity and find that our main results remain unchanged (see online supplemental
Appendix Table A4).
9. The results also remain unchanged if we control for the event’s weekday to account for slow
news days.
10. For a 2D representation of the bivariate relationship between spatial and temporal distance and
reporting intensity using semiparametric regression (Ruppert, Wand, & Carroll, 2003), please
see Figures A1 and A2 in the online supplemental Appendix.

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