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Independent media under pressure: evidence from Russia

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ABSTRACT

Existing literature recognizes growing threats to press freedom around the world and documents changes in the tools used to stifle the independent press. However, few studies investigate how independent media respond to state pressure in an autocracy, documenting the impact of tactics that stop short of shutting alternatives to state media. Do independent outlets re-orient coverage to favor regime interests? Or does repression encourage more negative coverage of the regime instead? To shed light on these questions, we investigate how the abrupt removal of independent outlet TV Rain from Russian television providers influenced its coverage. We find that shortly after providers dropped TV Rain, the tone of its political coverage became more positive and its similarity with state-controlled Channel 1 increased. However, these effects were short-lived. Additional evidence suggests that subscription revenue contributed to the station's resilience. These findings add to our understanding of media manipulation and authoritarian endurance.

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Introduction

Most non-democratic regimes today allow some independent alternatives to state media. Yet illiberal incumbents' coexistence with independent outlets – those that do not depend on the state's support or sponsorship – is at best uneasy.¹ Nuanced coverage of developments at home and abroad and revelations of official malfeasance threaten to erode a regime's legitimacy and challenge the stability of authoritarian rule (Levitsky and Way 2002; Egorov, Guriev, and Sonin 2009; Petrova 2011). To maintain control over information, governments in autocracies and fragile democracies have in recent years deployed a diverse set of strategies (e.g. King, Pan, and Roberts 2013; Petrov, Lipman, and Hale 2014; Smyth and Oates 2015; Greene and Robertson 2019; Huang, Boranbay-Akan, and Huang 2019; Rozenas and Stukal 2019; Lankina, Watanabe, and Netesova 2020; Roberts 2020). While illiberal regimes can force independent outlets to close, the costs of doing so are high (Knight and Tribin 2020; Carter and Carter 2021). As a result, incumbents often prefer more indirect strategies of control. Legal attacks, as well as regulatory and financial pressure, are often used to limit outlets' access to distribution networks and advertising revenue (Repucci 2019). What impact does such pressure have on independent outlets?

We present two competing predictions about the effect of state pressure on independent outlets' political coverage in nondemocratic regimes, which illustrate some of the trade-offs regimes face as they attempt to control information. On the one hand, state pressure may *increase* outlets' incentives to pander to the regime; indeed this is the very purpose of regime attacks on independent media. To

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retain advertising revenue, maintain access to state sources, or reduce the threat of future retaliation, independent media may respond to pressure by providing more positive coverage of the regime and content that more closely resembles that of state outlets. On the other, state pressure may also reduce outlets' incentives to pander to the incumbent. By bolstering editors' and journalists' willingness to mobilize against a repressive state, or by increasing outlets' reliance on their liberal audience as a source of independent, subscription-based revenue, state pressure may fail to elicit more sympathetic coverage of the regime. We explore these predictions and discuss underlying mechanisms using evidence from contemporary Russia, a prominent example of an electoral authoritarian regime.

Our research design exploits the abrupt removal of Russia's most prominent independent television channel, TV Rain (*Dozhd*) from cable and satellite providers in January 2014, following sharp criticism by the Kremlin of its publication of a controversial poll. Although TV Rain's access to advertising revenue plummeted as the state opened investigations, the channel continued to provide live broadcasts through its website. The empirical analysis uses original data from a corpus of 96,648 stories to examine whether and how the attack affected TV Rain's political coverage in the weeks and months that followed. We also investigate whether TV Rain's content became more similar to that of state-owned Channel 1 during this period. Being able to exploit both within- and between-outlet variation in the tone of coverage and its content helps us to address many threats to inference. Comparing coverage on TV Rain and state Channel 1 allows us to investigate how independent and state-run outlets respond to the same changes in the news cycle and other temporal trends. Then to evaluate the mechanisms associated with changes in coverage, we draw on a variety of secondary sources including press releases, interviews by the managers and editors of TV Rain, and available financial data from the station.

To preview the results, we find that shortly after TV Rain was disconnected from providers, the tone of its political coverage became more positive. In subsequent weeks, the similarity of content broadcast on TV Rain and Channel 1 also increased. Both effects, however, were short-lived. Within weeks, TV Rain's political coverage became more negative. By summer 2014, the content broadcast on the two outlets was again distinct. Through careful substantive discussion of potential mechanisms driving these changes, we propose that independent sources of subscriber revenue may have allowed the channel to return to its more critical and distinct editorial line. We also discuss why shifts in TV Rain's tone and coverage cannot be explained solely by changes in the ranks of TV Rain's journalists or by changes in the level of threat facing the channel.² We also consider whether extraordinary events, such as the Sochi Olympics or Crimea, and changes in the platform by which TV Rain delivered its content could account for trends in the nature of its coverage in this specific context, but demonstrate that such explanations are unlikely.

By investigating the consequences of regulatory and financial restrictions on independent outlets in a non-democracy, this work contributes to the literature on authoritarian media control and the impact of alternatives to outright censorship (e.g. King, Pan, and Roberts 2013; Roberts 2018, 2020; and see; Fredheim 2017 on the impact of Kremlin efforts to install loyal editors at key independent outlets). While existing scholarship has focused mostly on forced media closures and explored their effect on remaining outlets' coverage in non-democracies (Kronick and Marshall 2018; Qin, Strömberg, and Wu 2018), less attention has been paid to how economic and legal attacks influence besieged outlets that remain in operation,³ an outcome that may in fact be more common around the world than outright closure (WAN-IFRA 2019). Indeed, the types of repression we consider, namely economic and regulatory attacks on independent outlets, are increasingly used by leaders in fragile democracies and electoral autocracies not only in Eastern Europe but also in Latin America, the Middle East, and Asia (WAN-IFRA 2019). To the best of our knowledge, this is one of the first studies of how independent media in electoral autocracies adjust their coverage in response to state sanctions that stop short of shutting down an outlet. Second, our work joins scholarship that examines how various revenue sources such as advertising (Di Tella and Franceschelli 2011; Petrova 2011), or changes in media ownership, and government partisanship (Durante and Knight 2012) influence

media coverage in democracies, and extends this agenda to electoral autocracies. Third, our findings have implications for studies on the factors that sustain a free press (e.g. Petrova 2011; Gehlbach and Sonin 2014). While advertisers helped to build independent media in countries such as Russia, revenue from subscribers may be key to sustaining it. Finally, if independent media can bounce back under truly autocratic institutions, resilience seems more likely in freer media environments where illiberal leaders have similarly sought to stifle the free press.

Independent media in electoral autocracies

While illiberal incumbents dislike critical media, many allow independent outlets to operate. Permitting alternatives to state-run media provides several benefits. Input from independent and commercial outlets can aid incumbents in identifying poorly performing officials and disciplining bureaucratic excess (e.g. Egorov, Guriev, and Sonin 2009). Independent outlets, or those not fully controlled by the state, may also help governments identify pockets of dissent, address social grievances (Huang, Boranbay-Akan, and Huang 2019), bolster the credibility of the government's rhetoric, and provide cover for government propaganda (Stockmann and Gallagher 2011).

At the same time, independent outlets also potentially threaten the stability of authoritarian rule. During the color revolutions of Serbia, Georgia, Ukraine, and Kyrgyzstan, independent media offered opposition forces and activists a platform to express grievances, and helped them gain support for their demands (Levitsky and Way 2002, 58; Egorov, Guriev, and Sonin 2009). Alternative narratives in independent outlets can help citizens detect overt bias in state-run media (Gehlbach and Sonin 2014) and dampen support for the regime. In Russia's 1999 parliamentary elections, for example, independent TV decreased the ruling party's vote share by 9 percentage points (Enikolopov, Petrova, and Zhuravskaya 2011).

To mitigate threats to their stability, autocrats can nationalize independent media, shut down stations, force changes in editorial teams, or apply other forms of pressure. Such actions have wide-ranging consequences that are both direct and indirect (Lawson 2002; McMillan and Zoido 2004; Kronick and Marshall 2018; Qin, Strömberg, and Wu 2018). Not only do they silence the outlet attacked, they may also change the behavior of other outlets that observe repression but are not directly affected (Kronick and Marshall 2018). By observing repression, journalists learn what is permitted, and accordingly adjust their reporting (Crabtree, Fariss, and Kern 2015).

To date, however, we know less about the effect of attacks that stop short of forcing independent outlets to close. This gap in our understanding of the consequences of subtler attacks on press freedom is problematic, since illiberal leaders increasingly use a more sophisticated toolbox to control the free media (WAN-IFRA 2019).

With the costs of overt coercion rising, twenty-first century illiberal regimes often opt for more indirect forms of repression, delegating to private entities and using parliament-approved legislation to stifle independent voices (Guriev and Treisman 2019; Bakke, Mitchell, and Smidt 2020).⁴ Economic and legal tools such as arbitrary tax investigations, financially draining lawsuits, or the abuse of regulatory and licensing practices are increasingly used against independent outlets in contemporary autocracies and fragile democracies alike. For example, control over access to distribution networks and legislation restricting access to advertising revenue have been used to sideline independent outlets in Belarus, Russia, Hungary, and Serbia (Freedom House 2017; Repucci 2019).

Such forms of indirect state pressure can have several simultaneous effects on independent media. Short of shutting independent outlets, attacks may affect a station's revenue and viewership, the morale of editors and journalists, as well as access to sources and government figures. How this bundle of effects impacts reporting by an independent outlet subject to attack is the central question that we aim to address in this paper. To the best of our knowledge, this is one of the first studies to explore how independent media in electoral autocracies respond to more subtle mechanisms of repression, such as regulatory harassment and financial pressure, that threaten their business models but do not force closure.

Indirect repression and independent outlets

Building on studies of media capture and repression, we consider two competing predictions about the effect of state pressure on the tone and content of reporting by independent outlets. The first holds that state pressure increases outlets' incentives to pander to the regime. This may be due to several factors related to editors' and journalists' motivations and an outlet's resources.

First, state attacks such as legal sanctions may result in budget constraints that influence outlets' resources and dampen their ability to provide critical coverage. In nondemocratic regimes media outlets' ability to secure advertising revenue depends not only on commercial, but also political factors. Advertisers and investors are often reticent about supporting outlets perceived as hostile to the ruling regime (Levitsky and Way 2002). Thus, when outlets come under state attack, revenue from advertising dries up for fear of retaliation, even when an outlet's audience does not change. The resulting fiscal pressure on independent outlets may have several implications: forcing outlets to produce less content, drop expensive programs, implement wage cuts, or even fire staff and journalists. In short, attacks that dampen outlets' access to advertising revenue may constrain their ability to produce the kind of nuanced and investigative coverage for which they are known in nondemocratic settings.

State sanctions, or even the threat of state pressure, may thus dampen editors' willingness to challenge the state. Concerns about the consequences of critical coverage may lead editorial teams to moderate coverage either pre-emptively or in response to an attack (e.g. Gratton 2015). Drawing on evidence from Mexico, for example, Stanig (2015) shows that the adoption of repressive defamation laws dampened coverage of corruption. To avoid being prosecuted or sued, journalists may engage in self-censorship or avoid reporting certain types of information altogether.

Editors and journalists may also try to actively signal loyalty to the regime, and they can do so in a number of ways (e.g. Chung-Hon Shih 2008). By providing more positive coverage of the regime, reducing their coverage of the opposition, or adopting a content mix that is more similar to that of state channels – the primary source of the regime's political message – independent outlets may try to escape sanctions, or reduce their scope. In short, attacks may elicit more positive coverage by shaping editors' and journalists' motivations to self-censor.

Explanations emphasizing the effect of government sanctions on independent outlets' resources and motivations to challenge incumbents yield the following expectation: *state-pressure increases independent outlets' incentives to pander to the regime*.

Pandering to the regime, however, comes at a cost. By providing coverage that resembles that of state-controlled media, independent outlets in electoral autocracies risk losing their audience (Gehlbach and Sonin 2014). As they become more "similar" to mainstream media, independent outlets may alienate their "core consumers," the viewers who value the fact that independent media provide coverage that other outlets do not.

A second argument, however, suggests that state pressure may fail to elicit the regime's desired outcome, and may even backfire. Consistent with research showing that repression mobilizes dissent (e.g. Lichbach 1987; Pan and Siegel 2020), it is possible that state sanctions may bolster editors' and journalists' willingness to mobilize against a repressive state. Moral outrage, a sense of injustice, and anger may lead journalists and editors to radicalize, in keeping with the finding that repression can catalyze greater dissent through emotional mechanisms (e.g. Carter and Carter 2021). Rather than reduce the willingness to confront the regime, pointed acts of repression have often been shown to increase citizens' willingness to mobilize against it (e.g. O'Brien and Deng 2015; Aytaç, Schiumerini, and Stokes 2018). While many independent outlets pride themselves on giving a voice to all sides, attacks make it more difficult for journalists and editors to resist the temptation to take sides.

Changes in outlets' revenue sources may also encourage independent outlets under siege to adopt a more critical tone. To begin with, the loss of traditional advertising revenue, as a result of government sanctions, may drive more critical coverage as outlets no longer have to consider the impact such coverage may have on their relationships with advertisers. What is more, to

compensate for losses in advertising revenue and to continue operations, outlets under strain must seek alternative sources of income. Subscriptions increasingly provide this income and allow independent media to diversify their sources of revenue (WAN-IFRA 2019). As existing research shows, it is independent outlets' ability to provide content that is distinct from state-run channels, which allows them to attract audiences that seek an alternative perspective and value the importance of a free press (see, e.g. Greene and Robertson 2019, 40–41). Indeed, across fragile democracies and electoral autocracies around the world, the market value of negative and critical news for independent outlets contrasts sharply with the political value of positive news for incumbents. Altogether, as the importance of subscription-based revenue increases, incentives to cater to those who are willing to pay for news that is different also increase while incentives to pander to the regime decline.

Both mechanisms – focusing on editorial teams' willingness to challenge the state, and changes in revenue sources that bolster independent outlets' incentives to pander to their core, liberal audience – support the following alternative expectation: *state-pressure reduces independent outlets' incentives to pander to the regime.*

Background

Contemporary Russia is a prominent example of electoral autocracy and shares many features in common with other illiberal regimes. While independent outlets do exist, they have faced mounting legal, regulatory, and financial pressures in recent years (Freedom House 2017). TV Rain, one of the last remaining independent television stations in Russia, was established in 2010. During massive protests in 2011–2012, TV Rain gave a platform to prominent opposition leaders, but also interviewed government ministers (Greene and Robertson 2019, 95–96). The channel's coverage of the protests underscored its role as the country's leading independent outlet and considerably increased its viewership while also making it a Kremlin target (Greene and Robertson 2019). On the eve of the events we study, TV Rain had an audience of around 10 million viewers per month, which extended well beyond Moscow. About one in four Russians had watched the channel, most on cable or satellite television (65%) (Levada-Center 2014).⁵

The period 2013–2014 featured accelerating attacks on independent outlets. For example, in late 2013, Putin dismissed the leadership of RIA Novosti, an outlet known for more balanced reporting than other state-controlled news outlets. In addition to TV Rain, two other outlets, Ren TV and Tomsk TV2 were in danger of being shut down in 2014 (Sanovich 2017, 6). In September 2014, new legislation restricted foreigners from holding stakes of more than 20% in any Russian media outlet, calling the future of some of the country's leading independent publications into question (Greene and Robertson 2019, 150). Legislation enacted in July 2015 banned advertising on cable and satellite channels, depriving over 100 regional television providers of their primary source of revenue (Freedom House 2017, 560).

The attack on TV Rain was multifaceted, and involved both state regulatory harassment and financial pressure. In late January 2014, cable and satellite providers – which together controlled almost 90% of the Russian market – abruptly dropped TV Rain. Their decision to drop the channel, after a barrage of criticism by Kremlin mouthpieces and reportedly under Kremlin pressure (Harding 2014), occurred on 29 January, just three days after TV Rain aired a controversial poll about the siege of Leningrad. The poll, which asked whether Leningrad should have surrendered to the Nazis to avoid loss of life, was published on the eve of the 70th anniversary of the siege on 26 January, and was swiftly retracted from the channel's website and social media accounts.

The Kremlin seized on the station's misstep. Immediately after the poll's publication, the Kremlin publicly proclaimed that the station had crossed a "red line."⁶ The signal to TV Rain's backers was clear and, for good measure, the authorities opened multiple audits and investigations into the station in the following days, including an investigation into alleged extremism (BBC Russian News Service 2014).

The attack's financial impact on TV Rain was swift. Advertising income, which made up about 80% of the channel's revenue in late 2013, was cut by 80%. Within a month – as access to the channel through cable and satellite providers dried up – viewership also declined sevenfold, from 17.4 to 2.5 million households (Levada-Center 2014). TV Rain moved online, and increasingly relied on support from subscribers. Over the coming months, TV Rain's subscription fee, its main source of revenue, increased roughly fivefold. These trends continued in subsequent years: online subscriptions made up 60–70% of TV Rain's revenue, compared with just 30–40% from advertising and distribution through smaller cable systems, between 2014 and 2017.⁷

Data

Our analysis relies on news stories from TV Rain and state-controlled Channel 1, covering the period from January 2013 to December 2014. Channel 1 provides a point of comparison for general trends in the media ecosystem at the time and state-sanctioned coverage of events.⁸

Our data, described in detail in online Appendix A.1, comes from the two channels' web archives. In total, the corpus includes 96,648 news items on a diverse set of topics – 42,725 for TV Rain and 49,923 for Channel 1. In general, stories correspond to content presented online and broadcast on-air on the two channels. In keeping with standard practice, we treat the transcripts obtained as unbiased sources of information about the content of both outlets (Rozenas and Stukal 2019).⁹

For each individual story, we collect information about its length (in words), and its topic – whether on domestic politics, economics, other domestic news, foreign news, entertainment, or sport. As discussed in detail in online Appendix A.3, stories published on Channel 1 are accompanied by categorical, thematic tags, and we use those as training data to also tag TV Rain stories. Applying the same content labels used by Channel 1 to TV Rain facilitates comparison in topic dynamic across the two channels.

To evaluate the mechanisms associated with changes in coverage, we also draw on a variety of secondary sources, including press releases, published and unpublished interviews with the station's founder and editor-in-chief, as well as revenue figures made public by the station's leadership in 2014.

Empirical analysis

Measuring news sentiment

We begin by studying changes in the tone of both channels' political coverage. As political news, we classify stories that cite the names of prominent government figures, such as the Russian President, the Head of the Investigative Committee, the mayors of Moscow and St. Petersburg, and the Secretary of the Security Council. There are 16,789 such stories across both outlets (18% of the total): 8,306 (19%) on TV Rain and 8,483 (17%) on Channel 1.¹⁰

We focus on this subset of news stories for a number of reasons. Stories that mention government figures are politically salient and likely to attract scrutiny, as they are carefully monitored by the Kremlin and relevant ministries. For this reason, these stories are also often carefully reviewed by editors prior to publication. We would thus expect outlets' critical or conciliatory stance toward the government to be clearly reflected in this subset of articles. We also acknowledge that differences in sentiment may stem from two inter-related processes: changes in how outlets talk about named government figures, and differences in the context of stories in which these government figures are mentioned. While the former describes relatively direct criticism of government figures, the latter (which is arguably even more relevant in this context) describes implicit choices about whether to associate government figures with negative stories and bad news.

To measure the tone of each article, we adopt a standardized dictionary approach and use a translated version of Lexicoder Sentiment Dictionary, as described in online Appendix B. Dictionary analysis is commonly used for the analysis of large and complex corpora, such as

news articles published over long periods of time. Lexicoder is one of the most commonly used dictionaries in political science (Young and Soroka 2012; Soroka, Stecula, and Wlezien 2015), and has recently been used to analyze political texts in 20 different languages (Proksch et al. 2019). Furthermore, it is one of the most comprehensive sentiment analysis dictionaries, with 4,567 words stems in English. Lexicoder is thus well-suited to our task of obtaining a continuous measure of the positivity/negativity of news stories.

We validate the sentiment indicator in a number of ways, described in detail in online Appendix B. First, we sampled 25% of all articles in the corpus, translated them into English using Google Translate API, and applied the original Lexicoder dictionary. The Pearson correlation between the two sentiment scores, which captures the direction and strength of the linear relationship between the two scores, is approximately 0.6. Next, we compared the sentiment of 1,000 randomly chosen news stories to scores assigned by human coders recruited on the crowd-sourcing platform Yandex Toloka. The correlation between the sentiment scores estimated with Lexicoder and crowd-labelers is 0.53 for articles longer than 200 words (59% of the corpus).¹¹ This is roughly consistent with Proksch et al. (2019), who find correlations of about 0.6 for several other Slavic languages using similarly translated Lexicoder dictionaries. Moreover, the tone of Russian media stories, covering a wide range of topics and including direct quotes by citizens and politicians as well as interviews, reports, and studio debates, is arguably more difficult to capture than the tone of the parliamentary speeches that Proksch et al. (2019) analyze. Finally, we read through the most positive and negative stories from each outlet that also mentioned government figures to ensure that these accurately reflect positive and negative coverage. Jointly, these checks suggest that the dictionary performs adequately, and that the estimated tone offers a good approximation of the stories' sentiment. Finally, it is worth noting that our sentiment analysis emphasizes changes in sentiment (rather than level). Insofar as the performance of the dictionary may introduce measurement error that is a fixed effect for each channel, our focus on variation over time within a given outlet (i.e. differencing) will address it.

Estimating the effect of Kremlin pressure

To estimate the effect of TV Rain's abrupt removal from cable and satellite providers, we compare the tone of its political coverage before and after the day the poll about the siege of Leningrad (26 January 2014) was published. While the exact day that the channel was dropped from cable and satellite subscription packages varied across providers, and TV Rain continued to broadcast on some providers for approximately a week after the poll, the risk of imminent sanctions was made abundantly clear immediately following the poll's publication.

It is important to note that the treatment we study is a "bundled" one: in the space of a few days, TV Rain faced investigations led by the authorities, was gradually disconnected from cable providers, and experienced a sharp decline in advertising revenue. This bundle of treatments cannot be easily disentangled. Our study estimates the overall effect of these treatments rather than isolates the effect of each treatment individually. We use the phrase "effect of government pressure" to describe the bundled effect of all treatments on TV Rain, and 26 January as the point of discontinuity.

Our main empirical analysis is based on OLS regression of the relative tone of government stories pre- and post-publication of the poll. More formally, we estimate the following model:

$$y_{i,t} = \alpha + \tau Poll_{i,t} + \beta X_{i,t} + \epsilon_{i,t}$$

where $y_{i,t}$ is the tone of individual story $y_{i,t}$ published on day t , which contains mention of a government figure. Here, $Poll_{i,t}$ is an indicator for whether the story was published before or after the poll about the siege of Leningrad (26 January 2014), $X_{i,t}$ is the set of control variables, and $\epsilon_{i,t}$ is the error term.

As control variables we use the natural logarithm of the length of every news story (in words) and its topic (domestic politics, economics, other domestic news, foreign news or entertainment). As discussed in detail in online Appendix A3, stories published on Channel 1 are accompanied by categorical, thematic tags, and we use those as training data to also tag TV Rain stories. Applying the same content labels used by Channel 1 to TV Rain facilitates comparison of the two channels' similarity. To account for potentially correlated errors for stories published on the same day, we cluster standard errors by date.

The design assumes that the timing of the poll was exogenous to news reporting on TV Rain. Indeed, there is no evidence to suggest that the poll, published during TV Rain's program "Dilettanty" on 26 January 2014 and occasioned by the 70th anniversary of the siege's end, was either a product of prior coverage or related to other factors that might have affected subsequent coverage. According to the channel's general director, the poll was conceived by the program's presenter and approved by the editor in charge as the program unfolded.¹² Indeed, TV Rain's decision to run an online poll was not unusual. From 2012 onward, approximately two to three polls, on average, were posted on the channel's website each month. The timing of this particular poll was more closely tied to historical events than current developments, which could explain subsequent changes in the outlet's coverage.

Moreover, given that the station's content had long been controversial,¹³ it seems unlikely that its leadership could have anticipated the precise timing of the government's attack. Though the poll served as pretext, the attack might well have occurred on another date. We thus treat its timing as if random with respect to the station's day-to-day political tone and content mix.

Government tone: main results and robustness tests

Figure 1, based on linear models, shows differences in the tone of government stories published just before and after the poll's publication. The left-hand plot shows the results for TV Rain. The right-hand plot shows the results for Channel 1. The unit of analysis is individual stories. As seen in the left-hand plot in Figure 1, the actions of Russia's cable and satellite providers had a positive and statistically significant effect on the tone of TV Rain's political coverage. For the five-day window, the estimated coefficient indicates approximately a 0.7 percentage point increase in the prevalence of positive over negative words in political news stories. This corresponds to roughly 30% of the standard deviation in TV Rain's tone over two years. This result is also robust in the 20- and 35-day windows, yet dissipates shortly after.¹⁴

Reassuringly, we observe no similar changes when we look at the tone of coverage in state-run Channel 1, shown in the right-hand plot of Figure 1. If salient topics or other temporal trends were behind the change in tone, we would also expect Channel 1 to respond accordingly. The fact that coverage became more positive only on TV Rain increases confidence in the conclusion that regime pressure drives observed changes in tone, rather than some other factor.

To probe the robustness of our results, we compare the sentiment of stories published just before and after TV Rain aired its controversial poll on January 26 using a Regression Discontinuity in Time design (RDiT). Regression Discontinuity designs aim to determine, in non-experimental settings where randomization is impossible, the effect of a treatment. In this case, the treatment again is a bundle of several factors coinciding with the attack on TV Rain (e.g. Lee and Lemieux 2010).¹⁵ As in a typical RDiT framework, we use time as the running variable and the day of the poll's publication as our discontinuity, or the treatment date. Stories published before the poll's publication are in the control group, while stories published after the poll's publication are in the treatment group. However, the clustered nature of our data, with multiple stories (the unit of observation) published on the same day, sets our approach apart from conventional RDiT designs (Hausman and Rapson 2018). Rather than rely on just one observation per unit of time (i.e. on just one observation per day) as in the most common RDiT set-up, our data also capture variation over time in the number of stories published and cross-sectional variation in story characteristics.¹⁶

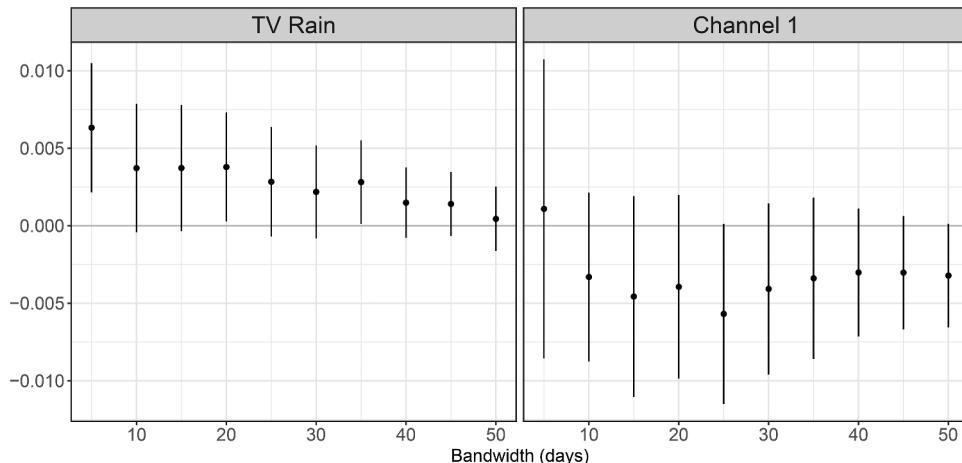


Figure 1. Effects of the poll (26 January 2014) on government tone. Note: The plot shows OLS regression coefficients and 95% confidence intervals for estimates of the effect of the poll's publication on government tone. The x-axis shows different bandwidths in the range between 5 and 50 days.

The results, which are presented in Figure 2 and in tabular form in online Appendix C.5, imply that TV Rain's removal from cable and satellite packages had a significant positive effect on government tone, as in the preceding analysis. Indeed, the jump in positive coverage of the government at the moment that TV Rain came under fire can be seen clearly also in Figure 2. As elsewhere, the running variable on the x-axis is days before or after the scandal surrounding TV Rain. The y-axis displays government tone, with higher values indicating more positive coverage. The plot implies roughly a half a percentage point increase in positive political coverage.¹⁷

It is worth noting that automated bin-width selection in these models results in a wider optimal bandwidth (83 days) than is shown in Figure 1. The consistency of our results across a variety of bandwidths and manual and automatic methods of bin-width selection lends further support to the main finding. After approximately six weeks, TV Rain began laying off staff, meaning that the journalists responsible for the stories differed pre- and post- when we focus on a larger window. In other ways as well, conditions on the ground had changed three months after TV Rain was taken off the air.¹⁸

In sum, these results show that the attack on TV Rain initially had an effect on the station's coverage: sentiment became less negative in its aftermath. Yet, this effect was short-lived. Approximately a month later, political coverage returned to where it was prior to the ban. What do these changes mean substantively? As we discuss in online Appendix D, the share of stories manually classified as critical of the Russian government increased from just one in five in the aftermath of the poll to one in three published in March and April, a statistically significant and substantively large difference.

The finding that political coverage on TV Rain became less negative just after the ban is especially striking given that the attack effectively limited the station's access to government sources. After TV Rain was sidelined and labeled as an opponent by the regime, it could no longer attract the government figures who had been a staple of its programming. In the immediate aftermath of the ban, a time when it was increasingly difficult for TV Rain to get government officials to appear on air, the tone of the station's government coverage became more positive, and remained so for approximately a month following the attack.

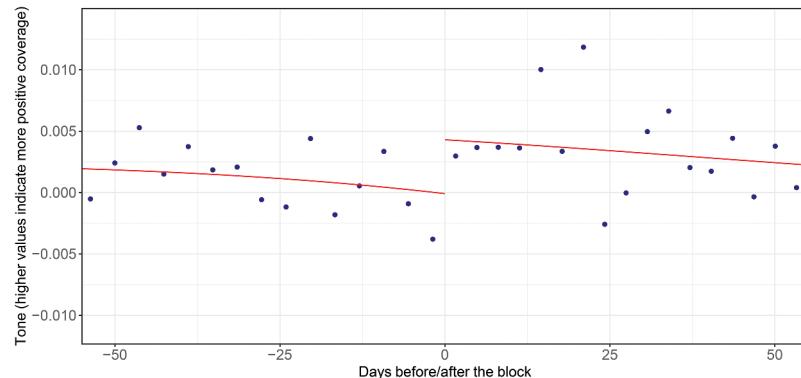


Figure 2. Regression Discontinuity estimates using a local-polynomial model. Note: Results from a local polynomial model with automatic bin selection and triangle kernel are shown. As elsewhere, the running variable is days before or after TV Rain published the controversial poll on 26 January.

Measuring bias based on content

In addition to examining how government pressure shaped the tone of TV Rain's political coverage, we also investigated how the channel's ordeal affected its similarity with state-run Channel 1. Now drawing on the full sample of stories published by both outlets, we analyze temporal changes in the daily similarity of the two stations' content. We assume that an outlet whose coverage is similar to that of the state channels could be seen as orienting its coverage toward the regime. This approach follows existing studies that measure bias by comparing an outlet's content and that of a source with a known political agenda (e.g. Qin, Strömborg, and Wu 2018). As a measure of content similarity, we use cosine similarity, a common measure of distance (see online Appendix D for more details). Cosine similarity ranges between 0, meaning that stories published on any given day across the two outlets are completely different, and 1, meaning that stories on two channels are exact copies of each other. Observed differences in cosine similarity may be attributed to both changes in the topics covered across outlets and to changes in the similarity of the language used by the two channels.

Figure 3 presents the results. The similarity of coverage on TV Rain and Channel 1 begins to increase after the ban, in early February. During this period, stories on the Sochi Olympics (February 7–23) dominated coverage on both outlets. To ensure, therefore, that the observed increase in the similarity of the two outlets is not an artifact of the Olympics, we drop all stories on sports, as well as those that mention Sochi and the Olympics from the analysis. If the increase in outlet similarity is a function of the stations' coverage of these events, excluding stories covering Sochi and the Olympics from the analysis should eliminate the appearance of greater similarity post-ban. Yet, it does not. As Figure 3 clearly shows, the two outlets' rising similarity cannot be explained by their coverage of the Sochi games.

Finally, as shown in Figure 3, the similarity of coverage on the two outlets continues to fluctuate throughout the first half of 2014. Subsequent spikes coincided with Crimea's declaration of independence and its annexation (mid-March 2014), the electoral campaign in Ukraine amid fighting in Donbas (May 2014), and the MH17 plane crash (July 2014).¹⁹ Altogether, this evidence of an initial rise in the similarity of content across outlets followed by a decline (albeit one punctuated periodically by high-profile events) reinforces the preceding section's evidence that state pressure resulted in no more than a short-lived improvement in the station's political tone. By the second half of 2014, both types of evidence imply that TV Rain was returning to the distinct coverage it was known for before the attack.

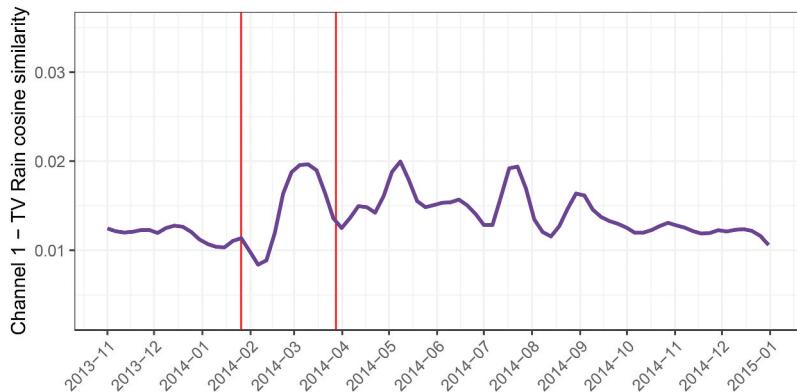


Figure 3. Trend in content similarity between TV Rain and Channel One. Note: Estimates of daily average cosine similarity with 95% standard errors are shown. We exclude stories on sports and those mentioning Sochi. Vertical lines correspond to the date of the poll (26 January 2014) and the end of the live marathon in support of TV Rain (28 March).

Mechanisms

The evidence presented so far suggests that in the weeks following TV Rain's ordeal, the tone of its political coverage improved. In February, content similarity with Channel 1 also began to increase. Yet both effects were short-lived. Political coverage returned to a more negative tone by early March, while content similarity with Channel 1 declined during the summer of 2014. While we cannot entirely disentangle the bundle of factors that explain the impact of government pressure, here we discuss several potential mechanisms that may drive changes in the tone and content of an independent station faced with state pressure.

Changes in revenue sources

As already discussed, when TV Rain was dropped from TV providers, access to viewers and advertising revenue plummeted. [Table 1](#) shows changes in advertising revenue in the two months immediately before and after TV Rain's ban in January 2014.

To compensate for lost advertising revenue and to continue operations, TV Rain was forced to seek alternative sources of income. One-off donations from viewers, subscriptions, as well as a live marathon in late March 2014 provided the station with much-needed revenue, generating income for more than a month of broadcasting ([RIA Novosti 2014](#)). As the second row of [Table 1](#) shows, between December 2013 and March 2014, TV Rain's subscription-based revenue increased approximately sevenfold.²⁰ Revenue that was independent of the state, and independent of advertisers, enabled TV Rain to continue operations. Could growing reliance on subscribers also have influenced the station's tone of coverage and content?

Existing research shows that to maximize revenue through subscriptions and advertising, media outlets need to produce news content that is in line with consumers' prior beliefs (e.g. [Matthew and Shapiro 2010](#)). In democracies and electoral autocracies alike, stations need to cater to a target demographic's expectations. Survey evidence suggests that unlike others, TV Rain's core viewers – and those most able to support the channel financially through subscription revenue – believed that it was possible, and even patriotic, to criticize Russia's leaders ([Levada-Center 2014](#)). Among TV Rain's wealthiest viewers and most likely financial supporters, this view was held by an overwhelming majority (86%).²¹ Altogether then, the need to sustain the support of an increasingly narrow group of their liberally minded audience may have encouraged editors to pander to subscribers who had political and ideological preferences that were distinct from those of the ruling regime.

Table 1. TV rain sources of revenue, November 2013–May 2014 (thousands of rubles).

Source	November 2013	December 2013	January 2014	February 2014	March 2014
Advertisement	26,454	36,387	7,834	6,560	10,030
Subscriptions	1,982	6,316	11,244	15,012	40,210

In January 2014, there was a sharp decline in advertising revenue that coincided with TV Rain being dropped by broadcasters. In late March, there was a large uptick in subscriber revenue.

Indeed, TV Rain's return to more negative political coverage in February coincided with rising reliance on subscription revenue, shown in *Table 1*. As shown in *Figure 4*, the tone of coverage continued to remain negative in the months that followed. Likewise, TV Rain's similarity with state-owned Channel 1 was fleeting, returning to pre-attack levels in the summer of 2014. Again, this shift in coverage temporally coincided with TV Rain's decision to increase its subscription fee almost fivefold.²² Subscribers who were willing to pay in order to maintain access to news coverage likely differed from those who opted not to renew their subscription in meaningful ways: they were likely to be wealthier and to place greater value on accessing distinctive content (Levada-Center 2014). Aware of these changes, TV Rain may have felt that it was more important to distinguish itself from other outlets. In sum, we cautiously interpret temporal changes in the tone and content of coverage on TV Rain as suggesting that the infusion of subscriber revenue added resilience to the station's business model, and helped it regain its independent voice.

Changes in the levels of threat facing independent outlets

Another possibility is that government threats against independent media rise and fall, and it is primarily these fluctuations in the climate of intimidation that best explain changes in the tone and content of reporting on independent outlets. In the case of TV Rain, one might argue that the initial improvement in the tone of political coverage, as well as the increase in content similarity with Channel 1, reflected editors' willingness to appease the authorities and prevent additional retaliation. Evidence from interviews with the station's leadership supports this interpretation. It is clear

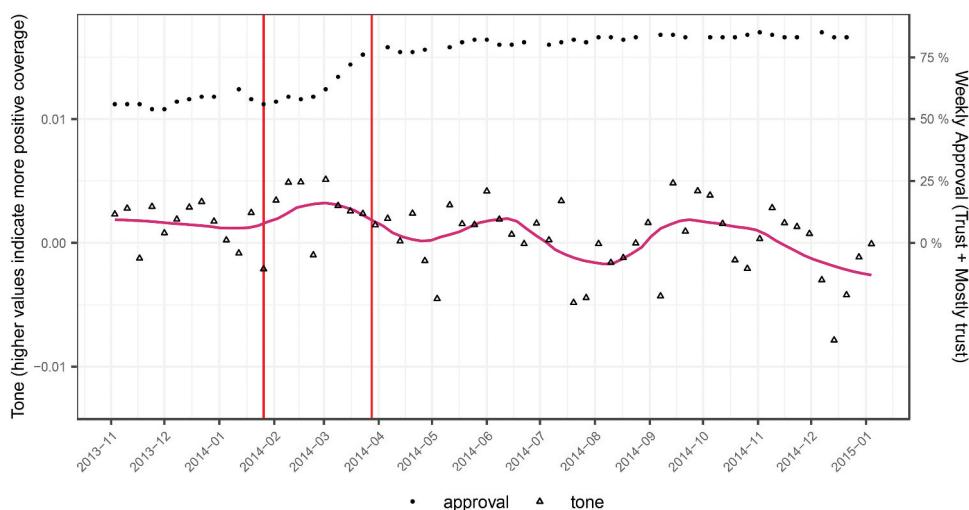


Figure 4. Tone of government coverage on TV Rain and presidential approval. Note: Estimates of weekly average tone with 95% standard errors are shown. Vertical red lines correspond to the date of TV Rain's poll on the siege of Leningrad (26 January 2014) and the end date of the live marathon on TV Rain (28 March 2014). Approval ratings come from the weekly "FOMnibus" surveys.

that in the early days following the poll, TV Rain still held out hope for an agreement with broadcasters. It is also clear that editors believed the station's survival hinged on appeasing the Kremlin (Aksenov 2014).

Although the possibility of concessions may have encouraged TV Rain's editorial team to initially show restraint in the early days following the attack, it is unlikely that the critical editorial line that re-emerged in February, or the decline in content similarity with Channel 1 in the summer of 2014, were due to the station's belief that the threat had passed. Indeed, editors in non-democracies rarely have a clear sense of when it is "safe" to resume normal operations. In Russia, 2014 was a year of growing – not decelerating – attacks on independent outlets. In April 2014, for example, when TV Rain's online editorial line was becoming more negative, the Russian regulator was cracking down on opposition blogs. Around the same time, Russia's most prominent independent regional broadcaster, Tomsk-based TV2, also went off the air. Yet the tone of TV Rain's political coverage only became more negative.

Indeed, given the broader climate of intimidation for independent media throughout this period, we might wonder whether attacks on other outlets rather than the poll per se caused TV Rain's editorial line to shift. The dismantling of another station, RIA Novosti, in December 2013 (Fredheim 2017) may have had a chilling effect on TV Rain, but it is unclear how those events could explain the jump that occurred nearly a month later, between late January and early February 2014. In short, given the timing of these attacks, demonstration effects alone cannot explain the patterns we observe in these data.

Editors' response

At the same time, attacks on independent outlets may have a direct effect on journalists' and editors' motivation to adopt a more critical stance towards incumbents through their emotional impact. Interviews make clear that the attack provoked strong emotions among the editors and journalists impacted, which made it difficult to refrain from criticizing the government. Yet rather than attack the government, TV Rain initially offered more conciliatory coverage. Crucially, TV Rain's coverage did not return to its more critical valence and distinct coverage until sometime later, once it became clear that an agreement with broadcasters was not forthcoming and with the increase in subscriber revenue.

Changes in staffing

Resource-based explanations of media capture suggest that changes in outlets' tone and content may reflect changes in outlets' capacity to produce critical coverage. Tightening budget constraints may force outlets to implement wage cuts, drop expensive programs, and even fire staff and journalists. Another possible alternative, therefore, is that changes in TV Rain's news content and framing reflect changes in who was producing the stories. Indeed, by early spring 2014, loss of revenue forced TV Rain to make pay cuts, cut weekend shifts, and fire almost half of its staff.²³ Staff departures were predictably nonrandom. Journalists most likely to be hired elsewhere left the station first. If these journalists were more likely to invest effort into producing original, investigative content, their departure could explain the growing similarity in content between TV Rain and Channel 1. This explanation has at least two shortcomings. First, TV Rain did not initiate layoffs until weeks after the point at which its content became more similar to that of Channel 1 in early February. Second, this explanation cannot account for the return to more critical coverage and distinct content that occurred on the channel over time. There is no evidence that TV Rain was able to rehire the journalists it had let go in the spring. Thus, changes in who was producing the stories are not consistent with broader patterns in the data and seem unlikely to explain the changes in tone and content that we observe.²⁴

Alternative explanations: case-specific factors

The changes in revenue, levels of regime repression, and independent outlets' motivation to challenge the state just discussed are common factors shaping targeted outlets' response to state pressure in any context. Yet, several factors specific to the Russian context at the time of the attack may have also shaped TV Rain's response. We consider some below.

To begin with, the approval ratings of Russia's leaders spiked as events unfolded in Ukraine. Could changes in the tone of TV Rain's coverage follow a pattern of pandering to an already popular government? The short answer is no. As the dynamic of presidential approval in Figure 4 shows, coverage on TV Rain became more positive before Putin's approval rating began to rise and well before the annexation of Crimea. Approval remained high – and continued to rise gradually – over the summer of 2014 while TV Rain's tone of coverage did not improve, and while the station began to regain its distinct coverage. Although TV Rain's positive coverage of the Kremlin at the start of 2014 may have contributed to the Crimea consensus, shaping Russian opinion in ways that were favorable to the regime, changes in the tone of its coverage cannot be explained by incentives to pander to a popular leader: witness the divergence between TV Rain's tone and popular opinion of Putin during especially the second and third quarters of 2014.

Another possibility is that the changes we have documented in TV Rain's coverage are best explained by the impact of extraordinary events and would have occurred regardless of state sanctions, or shocks to the station's revenue. We might be concerned that TV Rain would have become more positive in its coverage of the government as a result of the Sochi Olympics or the annexation of Crimea even if it had not been dropped by providers. This too seems unlikely given the evidence. The changes on TV Rain began before coverage of the Sochi Olympics started and before the annexation of Crimea. In fact, the uptick in positive coverage of the government began at the end of January, precisely when it was dropped by cable and satellite providers. Empirically, changes in the tone of political coverage on TV Rain remain robust when stories related to the Olympics, or sports more broadly, are excluded from the analysis. To account for concerns regarding the impact of Sochi coverage on the similarity of coverage across TV Rain and Channel 1, we excluded stories on the Winter Olympics and sports from that part of the analysis.

Conclusion

To the best of our knowledge, this is one of the first studies to explore how independent media respond to government attacks that stop short of forcing an outlet's closure, and to document the efficacy of such a strategy over time. The empirical analysis relied on original data on the tone and content mix of coverage from a corpus of approximately 96,648 Russian-language news stories. We began by examining whether government pressure was effective in shaping coverage on the independent outlet TV Rain. Evidence suggests that when television providers dropped TV Rain, the tone of its political coverage became more positive. We then analyzed temporal changes in the content of TV Rain's broadcasts relative to the content of state-controlled Channel 1. Our findings show a rise in the similarity of the content broadcast on TV Rain and state TV following the attack. Yet this "convergence" effect was short-lived. Political coverage on TV Rain again became more negative and the similarity of the content broadcast by the two outlets declined in subsequent months. Altogether, the findings suggest that government pressure, even when exercised at arm's length, can have at least a temporary chilling effect on reporting in independent outlets.

We acknowledge that TV Rain's ordeal represents a bundle of several treatments, and that several factors drove the channel's response to state pressure. Through careful substantive discussion of the case, we made an argument for the importance of an outlet's sources of revenue for understanding the impact of government pressure. Indeed, political coverage became more negative and less similar to the state channels over the period after revenue from viewers increased. Our findings thus

also highlight the dilemma autocrats' face in managing independent media. The very attacks that autocrats use to intimidate independent media can lead stations to become more reliant on viewer support.

While evidence from a single country does not provide a general test, our results suggest, first, that government sanctions can stifle criticism from independent outlets and, second, that access to independent revenue may limit the effectiveness of such tactics. Importantly, TV Rain's response to state pressure and increased reliance on subscriber revenue is indicative of the strategies adopted by besieged outlets elsewhere. Existing research finds that in an effort to resist government pressure, outlets in Latin America are switching to a new business model, one that involves memberships and subscriptions (WAN-IFRA 2019). Independent outlets facing mounting pressures in Indonesia and Mexico have also shifted towards a subscription-based model for online services (WAN-IFRA 2019, 18). Malaysiakini, a popular independent Malaysian news site, in existence since the 1990s and a frequent target of government pressure, has relied largely on subscriptions since 2002.²⁵ With government attacks undermining its ability to secure advertising revenue, Malaysiakini, like TV Rain, turned to its dedicated consumers. Similarly, Mada Masr, an independent digital news site repeatedly harassed by the Egyptian government, turned in 2017 to its readers. According to commentators, "[Mada Masr's] decision to launch a membership program was more than just an attempt to develop revenue streams and sustainability; it was an attempt to maintain editorial independence and build a community."²⁶ SunStar in the Philippines and Hiber (7iber) in Jordan are also cases that exemplify how access to subscription revenue may help independent outlets maintain an independent voice when faced with government pressure.²⁷ Recognizing the importance of diversified revenue, the world association of news publishers has recently emphasized that adapting revenue models to ensure access to independent income could help safeguard press freedom in repressive contexts (WAN-IFRA 2019).

Even if the attack ultimately extracted from TV Rain more favorable coverage of the regime only in the shortrun, was it successful in achieving the Kremlin's broader aims? It is true that the attack left TV Rain with a much smaller audience – and one that was more urban and probably more liberal – than it had previously. TV Rain's viewership after the attack consisted mainly of a small core audience that was likely to be critical of the Kremlin regardless of their access to the station, and which might have been even more vocal had the Kremlin chosen to close it. Meanwhile, other less politically interested or critical viewers – potential swing voters – were cut off. In this sense, the attack was clearly successful.

At the same time, the attack might also be viewed as unsuccessful, not only or primarily because the station was able to maintain an audience among Russian liberals, but because, at a key moment – during the 2019 Moscow election protests – the station was able to temporarily lower its paywall. In so doing, it threatened to broaden its audience at a time of vulnerability for the regime and to influence the news cycle. This move was sufficiently threatening to the Kremlin that it provoked further retaliation (Lebedeva 2019). In this sense, the outcome in 2014 in which TV Rain locked itself behind a paywall – an outcome that may indeed have looked initially like a success to the Kremlin – required that the Kremlin escalate further in 2019 and then again in 2021 prior to the State Duma election, when the Kremlin formally labeled Rain a "foreign agent." In short, the Kremlin's move against TV Rain in 2014, which we discussed in this article, ultimately succeeded neither at halting the station's distinct coverage nor at making it too obscure to be relevant.

It is also worth noting, however, that the Kremlin's attack against TV Rain likely helped communicate the limits of "permissible" behavior, both for TV Rain and other independent outlets. The Kremlin's response indicated that independent outlets could face retaliations when directly investigating government corruption on the one hand and when attempting to bridge to new audiences, individuals beyond their "liberal" core, on the other. In a similar vein, following TV Rain's ordeal in 2014, the Kremlin may have learned that indirect attacks, even when accomplished through proxies, can be effective at reducing independent outlets' audience and dampening their credibility among

the wider public. The Kremlin may have also learned that regulatory and fiscal attacks can encourage advertisers who fear being perceived as hostile to the government to withdraw support, compromising outlets' ability to survive.

In turn, TV Rain's response to these events may have taught the Kremlin that independent, or subscription-based, revenue can help independent media ensure resilience against attacks. This realization may have motivated the Russian authorities' decision to expand foreign agent legislation to include media organizations in 2017. Indeed, Russia's current foreign media law requires individuals or media organizations receiving independent revenue from abroad to declare their agent status in all their activities and submit to audits. These sorts of legal attacks can reduce outlets' ability to attract independent revenue both through subscribers and independent advertisers alike. Investigating changes in the evolution of the Kremlin's strategy toward independent media (and that of other illiberal incumbents) constitutes a worthy avenue for future work.

For scholarship in comparative politics, this research opens several promising lines of inquiry. An important question concerns why regimes opt for one form of pressure over another. Under what conditions do governments in authoritarian regimes and backsliding democracies choose to apply regulatory pressure, and when do they simply force an outlet to close? This question, which implicates both the international and domestic costs of stifling free speech, is beyond the scope of this study but a promising topic for future research. Future work could also corroborate or further contextualize findings on the importance of subscription revenue by comparing coverage across different types of independent outlets with varying degrees of dependence on viewer-based revenue in other settings. Such studies might fruitfully examine whether outlets that rely heavily on subscribers are more politically independent and critical than those that rely predominately on advertisers, and also the related question of whether subscription-based models actually help to deter government attacks.

Postscript

In March 2022, following Russia's invasion of Ukraine, several independent outlets, including TV Rain, were forced off air. The editors of TV Rain decided to cease operations amid increased pressure from the Russian regulator over the channel's coverage of the war. TV Rain's website was blocked in early March at the request of the Prosecutor General's office, days before the State Duma passed legislation that imposed prison sentences of up to 15 years for individuals, including journalists, who contradicted official Kremlin narratives about the "special military operation," including referring to it as either as an "invasion" or "a war."²⁸ This episode echoes lessons the Kremlin may have learned in recent years, including from earlier efforts to repress TV Rain. Once more, legislation, as opposed to brutal force or direct coercion, was the Kremlin's preferred tool of repression. As in 2019, the Kremlin's attack on independent outlets seems to reflect growing concern with these outlets' ability to reach new audiences. As events on the ground made it more likely that new audiences – beyond TV Rain's core, liberal consumers – could seek new information about the invasion, the need to stifle free press became more pressing than ever. At the same time, the experience of other independent outlets, such as Meduza, has underscored the importance of independent revenue for allowing outlets targeted for repression by the state to continue operations. To survive, Meduza has asked for international subscribers' support and donations. Meduza's ability to build a successful campaign for donations, inside Russia and abroad, has for years enabled it to remain afloat and continue to provide critical coverage of the regime.²⁹ This again underscores the importance of our argument regarding the role of independent, subscription-based revenue for enabling the resilience of free press under authoritarianism.

Notes

1. Following Petrova (2011), state and independent outlets primarily differ in the extent of state influence over news and editorial decisions.
2. Indeed, around the time that TV Rain's coverage again became more negative, the Russian regulator was cracking down on opposition blogs and had threatened to suspend the license of one of the country's most prominent independent regional broadcasters, Tomsk station TV2.
3. But see Lawson (2002) on how the PRI pressured Mexico's private media and McMillan and Zoido (2004) on the use of bribery to coerce independent media in Peru.
4. Indeed, for many autocrats, shutting down TV stations is a last resort. Less drastic and less visible measures are often preferred. At the same time, other governments simply lack the means or the will to shut down every dissenting voice.
5. It is important to note that these were not regular viewers. TV Rain's overall share of regular TV viewers was no more than 2–3% even in Moscow.
6. See https://www.gazeta.ru/social/news/2014/01/29/n_5910937.shtml, accessed 23 March 2022.
7. Source: vc.ru, 19 April 2017. "We Ended up in Hell and Lost 80% of Our Viewers in a Day – Interview with the General Director of TV Rain, Natalia Sindeeva."
8. We use Channel 1 rather than another independent outlet for comparison, because there was no other country-wide independent TV station in Russia in 2014. Furthermore, the attack on TV Rain could reasonably be expected to have "spillover" effects that would impact coverage on other independent media (e.g. Crabtree, Fariss, and Kern 2015)
9. TV Rain's web archive includes news bulletins and news shows, which we include in the analysis. However, as we show in online Appendix C.2, findings are consistent when we restrict the sample of TV Rain to stories that appear in the "news" section of the website, and to the "Here and Now" news show.
10. See online Appendix A.2 for more details.
11. The correlation falls to 0.47 for stories with fewer than 200 words, indicating that sentiment is more ambiguous in shorter texts.
12. https://tvtrain.ru/teleshow/here_and_now/natalja_sindeeva_ja_hochu_ivnitsja_pered_ljudmi_kotoryh_eto_dejstvitelno_zadelo_takie_ljudi_byli_i_vnutri_telekanala-361621, accessed 1 February 2022.
13. For example, in November 2013 it aired an investigative report chronicling corruption among high-ranking government officials.
14. Autocorrelation in our series is no higher than .054 at AR(4) and even lower for other lags.
15. More specifically, we report below the results from local polynomial models with automatic bin selection, using the approach described in Calonico, Cataneo, and Titiunik (2015) and robust standard errors (Calonico, Cattaneo, and Titiunik 2014). Automatic bin selection allows us to compare the mean sentiment of stories within pre-selected bins, i.e. time periods. The results of linear RDIT estimation are available in online Appendix C.
16. Variation in the daily number of stories gives us more flexibility to analyze very narrow bandwidths (i.e. shorter time periods) around the discontinuity, i.e. the day of the poll's publication (starting from five days) over which the identifying assumptions are more plausibly met, and to consider whether treatment effects increase or dissipate over time. Because the number of observations (for example, days) is usually very small in traditional RDIT designs, researchers must typically rely on much wider bandwidths, i.e. time periods, in order to obtain sufficient power (see Hausman and Rapson 2018 for a review).
17. The somewhat smaller size of these estimates relative to those based on narrower bins in Figure 1 is consistent with the specification giving an estimate between the true short-run effect and long-run effect of the attack, which we argue is zero.
18. By the standards of regression discontinuity in time studies, our results rely on a very modest bandwidth. The majority of studies reviewed in Hausman and Rapson (2018) use a sample size of at least two years.
19. In online Appendix D, we re-run the analysis, omitting stories that mention the keywords Donetsk, Kiev, and Ukraine from our sample. While the post-ban increase in outlet similarity remains, subsequent spikes are less pronounced.
20. See <https://www.facebook.com/vinokurov12/posts/904727419543486>, accessed 1 February 2022.
21. Individual, story-level viewership data collected for the project also suggest that, throughout 2014, stories providing more critical political coverage attracted a broader audience than others. The (Pearson) correlation between tone and web page views is -0.03 ($t = -3.4$, $df = 18318$, $p < 0.001$). As shown elsewhere, negative news sells.
22. The fee increased from 1,000 to 4,800 rubles. Source: vc.ru, 19 April 2017. "We Ended up in Hell and Lost 80% of Our Viewers in a Day – Interview with the General Director of TV Rain, Natalia Sindeeva."
23. Source: vc.ru, 19 April 2017. "We Ended up in Hell and Lost 80% of Our Viewers in a Day – Interview with the General Director of TV Rain, Natalia Sindeeva."

24. Finally, could the move from cable and satellite broadcasters to an online-only format explain the changes we witness? It is also worth asking whether a change in platform could drive these changes in content, as different platforms have different norms and audiences. In brief, if the change in platform were responsible, it seems likely that TV Rain would have become *less rather than more* similar to other broadcast channels in the first half of 2014. Specifically, it is not clear why TV Rain would suddenly become more like Russia's quintessential broadcast TV channel, Channel 1, by moving online.
25. According to Malaysiakini's CEO, having struggled to secure advertising revenue due to political pressures, the outlet had to "either go subscription, or basically close down." See <https://gijn.org/2018/07/04/after-20-years-fighting-for-democracy-whats-next-for-malaysiakini/>, accessed 24 March 2022.
26. <https://www.niemanlab.org/2017/06/mada-masr-egypts-poster-child-for-digital-news-begins-its-foray-into-a-reader-funded-model/>, accessed 24 March 2022.
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