

Advertisements in DVR Time

The Shelf Life of Recorded Television Commercials In Drama, Reality, and Sports Programs

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Time-shifted television can time-shift advertising. This study explores the frequency and timing of digital video recorder (DVR) advertising views in a sample of 2015–2016 drama, reality, and sports programs. Although the majority of recorded advertisements are “zipped” (fast-forwarded), some programs have many DVR viewers and delayed normal-speed advertisement exposures. The number and shelf life of recorded advertisement views vary by genre. DVRs accounted for more than 25 percent of all advertisement views from dramas (15 percent day-shifted, 5 percent shifted by more than three days). Time-sensitive advertisements might appear in sport or reality programs with fewer delayed views.

INTRODUCTION

Media competition has exploded with innovations in content, distribution, and devices. For the consumer, there is vast choice among live, streaming (Datta, Knox, and Bronnengberg, 2018; Schweidel and Moe, 2016), recorded (Bronnengberg, Dubé, and Mela, 2010), and on-demand offerings (Nam, Manchanda, and Chintagunta, 2010). In this environment, content providers, including television networks, constantly must enhance their offerings to attract audiences whose attention can be monetized through advertising (Baysinger and

Holloway, 2014; Littleton, 2014). From the advertisers' perspective, media planning becomes more complex as more viewers select the time of television-program viewing. The live share of television viewing has declined, leaving advertisers concerned about degraded commercial audiences in expanded digital video recorder (DVR) playback audiences (Crupi, 2016; Nielsen, 2014).

Increased DVR use is an important and maturing development in the television environment (Wilbur, 2008a, 2008b). One of the pioneers of the DVR, TiVo, is now more than 15 years old,

Management Slant

- Owners of digital video recorders (DVRs) commonly zip advertisements, fast-forwarding through them on recorded material.
- About 70 percent of all advertisements may be zipped in DVR playback.
- DVR viewing varies by genre, with DVR usage highest for drama, lower for reality programs, and lowest for live sports.
- Dramas also have a higher rate of DVR advertisement viewing than the other two genres, again with lower rates for reality programs and the lowest for live sports.
- Variable advertisement shelf life by genre has implications for television networks and advertisers.

Submitted April 18, 2017;
revised January 4, 2018;
accepted February 7, 2018;
published online November 11,
2018 .

and since its introduction, advertisers' views on DVRs have undergone a cycle from alarm to adaptation. One author argued that "fragmentation of an audience and DVR ad skipping" could spark "an exodus of advertisers" (Garfield, 2009, p. 132).

The DVR revolution is here, however—half of U.S. homes have the recorders, and their penetration has leveled off recently (Nielsen, 2015b). High television-advertising spending levels still are here as well (Wilbur, 2015). Total U.S. television-advertising spending remained high even as consumers adopted DVRs, streaming services, smartphones, and social media as well as high-definition televisions with bigger screens and better sound.

Although DVR penetration expanded from 23 percent in 2007 to 40 percent in 2010 (Crupi, 2014), U.S. television-advertising spending was similar in 2007 and 2012 (Frommer, 2011), years that bracketed the severe recession. The most recent television-advertising spending data available at the time the study was conducted show \$69 billion in U.S. television-advertising dollars spent in 2015 versus \$64.4 billion in 2012 (eMarketer, 2016). More media and device choices, in combination with more DVRs, have not led to an advertiser withdrawal from television. Programmers and advertising buyers, respectively, continue to adapt their practices to keep television advertising expensive and effective.

LITERATURE REVIEW

Living with the DVR

The television ecosystem now lives with the DVR, and ongoing empirical research focuses on the DVR's impact on advertising exposure and effects. Brand value may be received even from some "zipped" (*i.e.*, fast-forwarded) DVR advertisement exposures (Brasel and Gip, 2008). The majority of, but

not all, advertisements are fast-forwarded in DVR playback (Bronnenberg *et al.*, 2010; eMarketer, 2006; Steinberg, 2007).

About 70 percent of all advertisements may be zipped in DVR playback (Bronnenberg *et al.*, 2010; Pearson and Barwise, 2007). The advertisement-zipping rate may vary by genres and particular programs because of content factors or show demographics (Story, 2007; Wilbur, 2008a). The present research considers both the number and the timing of unzipped (*i.e.*, normal-speed) advertisement views in recent television-watching data, with a focus on the role of program genre.

Why Not Zip?

Why do people not zip all of the advertisements in DVR playback? First, even frequent DVR users sometimes simply may forget to zip commercials. One survey found that 85 percent of DVR users sometimes forget to zip and therefore receive normal-speed exposure to advertisements they had not intended to watch (Thomas, 2012). Forgetting to zip may be more likely for people who watch significant amounts of both live and DVR-playback television; these people could confuse the viewing modes in "space-out" fashion. Although the authors have not seen data, frequent dual-mode viewers also might try to zip live advertisements.

Second, some advertisements may be played back at normal speed because of task issues involved in manually skipping the commercials (Holmes, 2016; Thomas, 2012). Networks do not facilitate advertisement avoidance. Some networks use "pod busters," or advertisement-length program snips interspersed among commercials, to complicate advertising avoidance. Pod lengths and numbers and total advertising times per show are inconsistent across programs. Viewers may not have equal ability to anticipate the start of an advertising break across all shows.

The predictability of upcoming advertising breaks may vary by program genre or for particular shows. On the basis of signals such as the conclusion of performance or judging segments, viewers of some reality shows may be able to anticipate the start of advertising breaks. Other shows, however, such as dramas in which music plays both at heightened show segments and at the end of show segments, may give fewer diagnostic advertising signals. In sum, consistent manual advertising avoidance by DVR may require both vigilance and "a lot of work" (Holmes, 2016).

Advertisement-skipping rates also may differ depending on the day and time of playback. Viewers commonly play shows back on the same day, sometimes in a "near-live" manner (Wilbur, 2008a). Some advertisements may play at normal speed in "near-live" viewing as viewers try to catch entire programs without rewinds. Finally, some automated systems that facilitate advertisement zipping (*e.g.*, the Dish Hopper) may be less effective in same-day versus later program viewing. This difference might lead to a higher level of normal-speed advertisement views in same-day playback.

A few regular-speed DVR advertisement views are a product of choice. Consumers want DVRs to both time-shift shows and avoid commercials, but they might view some advertisements for information or entertainment value. Viewers might choose to watch advertisements that seem highly relevant (Petty, Cacioppo, and Goldman, 1981), such as messages for short-term sales events, an upcoming concert, or the latest movie openings (Thomas, 2012). Viewers also occasionally may choose a funny commercial to watch for its humor payoff (Holmes, 2016). Finally, viewers selectively might watch advertisements if they are currently on the market in the advertised brands' product category (Wilbur, 2015).

Finally, in considering the DVR impact on avoidance, one should note that the base rate of advertisement avoidance in live television is not zero (Schweidel and Kent, 2010; Siddarth and Chattopadhyay, 1998). Consider a hypothetical program with 60 percent live viewing (with 8 percent advertisement zapping—using the remote to change channels) plus 40 percent DVR viewing (with 70 percent advertisement zipping—using fast-forward to skip ahead). About one-third of all advertisements would be avoided, with about 15 percent of all advertisement avoidance a result of the zapping. The DVR has increased television-advertisement avoidance, but it did not introduce it. As with the introduction of the remote control decades ago, therefore, the DVR has amplified advertisement avoidance from a previously lower rate.

Why Watch Live?

There has been a recent trend away from live television viewing, which fell from about 80 percent of television watching in 2008 to about half as of 2016 (Crupi, 2014, 2016). Although differences may exist by genre, day part, demographic, and so forth, according to the Nielsen Company, “49 percent of broadcast primetime is time-shifted” (Crupi, 2014). A 2014 Nielsen report also noted that “time-shifted viewing has become increasingly important to networks and advertisers, with some networks seeing over 50 percent of their 18–34 aged viewership coming in the seven-day window after live.”

Another study showed some Nielsen program ratings for audiences ages 18–49 viewing the top-25 broadcasts, comparing “the number of people who sit down and watch a show in real time, without any kind of shift” with the number who watch with a delay (Porter, 2016). The researchers of that study observed that “less than half (48 percent) of the Top 25 shows’

Delayed DVR viewing leaves a consumer less prepared to participate in show-based discussions.

18–49 ratings in those four weeks came from live viewing, and only four shows in the Top 25 in the same time frame—the [Academy of Country Music] Awards and three episodes of ‘Little Big Shots’—earned as much as 67 percent of their rating from live viewing” (Porter, 2016). The Academy of Country Music Awards is a live show, and “Little Big Shots” is a performance reality program, which could make these offerings more attractive for live viewing.

If time-shifted viewing has grown in popularity and people lead busy lives and have more media control, why would they watch live? Why keep any appointment to watch television? One reason for live viewing may be to avoid the effects of “spoilers,” which could reduce show enjoyment. Some insights on spoiling may be gained from basic research, in which varying effects of spoilers on story appreciation have been seen.

One high-profile study found that spoilers giving general thematic and plot-end information increased readers’ enjoyment of short stories by authors such as Chekov and Updike (Leavitt and Christenfeld, 2013). This beneficial effect of plot theme and end previews was attributed to enhanced processing fluency. This finding suggests that not all prior information on a narrative is a threat to enjoyment. Television-network promotions and Hollywood film trailers are made to sell media content, and they are made by parties with incentives against fueling high levels of spoiling concern.

Other authors have mentioned that spoiler effects may vary with the medium, genre, and nature of preview or spoiler information (Johnson and Rosenbaum, 2015). Television shows may differ from

high-quality short stories in spoiling effects. Familiarity with characters and plot events from prior episodes could make plot-ending previews more of a threat to enjoyment in television shows versus short stories.

Multisensory television shows thus may be easier to follow, in general, without plot previews or background information than are less-familiar stand-alone short stories. Free-lance water-cooler talk and diffuse social media conversations on television program episodes may be difficult to avoid and do not reflect high sensitivity to spoiling consequences. Consumers therefore sometimes may choose live television viewing over playback viewing to avoid spoiling effects.

Watching live also could facilitate participation in in-person banter, online social-media discussions, and live Tweeting related to shows (Cohen and Lancaster, 2014; Fossen and Schweidel, 2017; Mosley, Schweidel, and Kent, 2017). For some viewers, these communication activities could enhance enjoyment and add a perceived social dimension to the television-viewing experience (Cohen and Lancaster, 2014; Nielsen, 2015a). Delayed DVR viewing leaves a consumer less prepared to participate in show-based discussions.

An additional reason for live watching involves anticipated regret over delayed viewing decisions (Zeelenberg, 1999). Viewers who expect to receive information or general reactions on an unseen episode may choose to watch live to avoid any later feelings of regret. Regret concerns may be heightened because the live versus playback decision cannot be reversed, and feedback on some shows may be difficult to avoid (Zeelenberg, 1999).

The Live-or-DVR Viewing Decision And Genre

Genre is known to have important effects on the live-or-DVR decision. Live sports events famously have low DVR viewing rates (Nielsen, 2014). This DVR abstention with sports could reflect concerns about spoiling and also a heightened sense of urgency and rapid news dating for sports events (Nielsen, 2015b). Major-league sports may be very prone to spoilers from encountered individuals, social media, news media, televisions in public places, and so forth. For high-profile sports events, even the behavior of fans in team jerseys in bars or on the street could suggest game events or outcomes. Anticipation of regret could be particularly strong in sports (*e.g.*, “How will I feel if someone tells me who won the playoff game?”). Live Tweeting or texting in fantasy sports leagues or friendly betting pools also may be facilitated by appointment viewing (Cohen and Lancaster, 2014; Wohn and Na, 2011).

Other live television programs, such as the live installments of “American Idol” or “America’s Got Talent,” may have some of the same properties as sports, but to a lesser degree. Such performance reality shows therefore could gain in the live share of total viewing compared with scripted drama programs (Nielsen, 2014). Live reality shows often appear among the most highly rated programs, and they may have commensurately high advertising rates.

When contrasted with live reality programs or sports, scripted dramas may lack inherent real-time intensity. Spoilers and summary reactions from other viewers may be avoided more easily with dramas. With less concern about expected in-person or social-media spoiling, dramas may be more popular to watch in DVR playback (Cromwell, 2016). Research shows that 52 percent of drama program views were

delayed in recent television-watching data (Crupi, 2016; Porter, 2016).

Another way to consider the DVR worthiness of dramas was suggested in a 2015 Nielsen report that noted that “almost all of the top time-shifted shows—whether ranked by the percentage increase or the absolute difference between the live and seven-day viewership—were scripted dramas” (Nielsen, 2015b). Higher rates of delayed drama viewing may fuel advertisement avoidance, and reduced advertising audiences in dramas may be a concern to both television advertisers and networks.

RQ1: Does advertising avoidance by DVR vary by program genre?

METHODOLOGY

The authors studied the frequency and shelf life of DVR advertising views by program genre. Live and DVR viewing data for a sample of shows in the 2015–2016 television season were obtained from comScore (See Table 1). The DVR viewing data incorporated delayed views up to 15 days after the live airing and gave running totals of DVR views by day (same day, first day after live airing, *etc.*). These data were gathered from a large set (more than 20 million) of television-viewing systems. The authors made a genre partition between scripted dramas, live-performance reality shows (*e.g.*, “Dancing with the Stars”), and live major-league sports events to explore associations between genres and DVR advertisement views.

The analyzed data were collected on a second-by-second basis from set-top boxes and averaged over 30-second intervals. Data were pulled for 24 episodes within each of the three program genres. The authors chose episodes that aired in close time proximity to each other (See Table 1) to reduce variation in program competition, seasonal variation in homes using

television rates, and so on. Given labor-intensive data extraction, the authors present all the data used in the analysis (See Table 1).

One 30-second advertisement segment and one 30-second program segment were identified visually from full-show ratings line charts for ratings typicality within each episode. To assess the effectiveness of this method, the authors compared data from their visual approach with data from a rules-based approach for all studied episodes of the drama, “Blue Bloods.” The comparison rule-based approach involved taking data for the centermost 30-second advertising interval in each of the four centermost advertising pods of each episode. (One-hour shows often have four or more advertising pods between their 10th and 50th minutes of running time, and earlier or later pods may be affected more heavily by lead-in, lead-out, finale segments, *etc.*)

Data for the centermost 30-second program intervals among these four pods also were gathered. Data for all variables (See Table 1) were compared across the approaches, and each average variable score was within 1 percent across the two methods (*e.g.*, 64.1 percent of all “Blue Bloods” DVR advertisement-segment views day-shifted in the visual approach versus 64.6 percent in the rules method). These results gave the authors confidence in the visual typical-ratings approach, which does not require rules for idiosyncratic show segments that move ratings (*e.g.*, large lead-in effects, football or basketball half-times, hockey intermissions, baseball inning breaks, reality-show finales, and award segments).

The authors calculated the percentage of all views of the program and advertising segments that were in normal-speed DVR playback (see the first two columns of data in Table 1). Given the presence of advertisement avoidance by channel changing in the live advertisement-viewing data,

TABLE 1

Live and Time-Shifted TV Viewing—Description of Variables

Show Genre	Show and Date	% Program-Segment Views = DVR	% Ad-Segment Views = DVR	% DVR Ad-Segment Views = Day-Shifted	% DVR Ad-Segment Views = Shifted > Three Days	% All Ad-Segment Views = Day-Shifted	% All Ad-Segment Views = Shifted > Three Days
Scripted drama	"Blue Bloods"						
	10/9	53.6	29.4	64.0	19.2	18.8	5.6
	10/2	54.8	28.9	64.0	19.4	18.5	5.6
	10/23	54.3	29.7	64.1	18.8	19.0	5.6
	10/16	55.8	30.9	65.7	20.1	20.3	6.2
	11/6	52.9	23.2	63.9	21.3	14.8	4.9
	"Empire"						
	9/30	54.6	36.6	54.2	20.9	19.8	7.6
	10/7	55.1	33.1	54.4	21.0	18.0	7.0
	10/14	55.2	33.1	54.4	21.2	18.0	7.0
	11/4	50.1	32.3	63.6	26.4	20.5	8.5
	10/21	56.7	32.0	55.6	22.2	17.8	7.1
	9/23	55.0	37.0	52.9	19.0	19.6	7.0
	"Madam Secretary"						
	11/8	42.4	23.7	46.3	16.9	11.0	3.6
	11/1	43.3	18.7	52.9	18.6	9.9	3.5
	10/18	43.8	19.5	46.4	18.7	9.0	3.6
	10/4	45.9	21.4	46.3	20.1	9.9	4.3
	10/25	46.2	22.3	44.8	17.8	10.0	4.0
	10/11	43.7	22.5	49.9	21.3	11.2	4.8
	"Blind Spot"						
	10/19	61.5	32.1	58.9	23.2	18.9	7.5
	10/26	57.3	29.3	63.0	29.5	18.5	8.6
	11/2	60.1	29.0	57.3	20.8	16.6	6.4
	10/5	59.5	29.4	57.3	23.0	16.8	7.4
	10/12	60.6	31.3	57.9	22.4	18.1	7.0
	9/28	59.8	31.4	57.7	23.2	18.1	7.3
	Drama average	53.2	28.5	56.6	21.1	16.3	6.1

continued

TABLE 1

Live and Time-Shifted TV Viewing—Description of Variables (continued)

Show Genre	Show and Date	% Program-Segment Views = DVR	% Ad-Segment Views = DVR	% DVR Ad-Segment Views = Day-Shifted	% DVR Ad-Segment Views = Shifted > Three Days	% All Ad-Segment Views = Day-Shifted	% All Ad-Segment Views = Shifted > Three Days
Performance reality	"Dancing with the Stars"						
	10/5	39.1	21.5	37.7	12.3	8.1	2.7
	10/12	41.2	20.2	40.7	13.2	8.2	2.7
	9/28	37.2	20.4	39.5	13.6	8.1	2.8
	10/26	40.6	22.5	39.6	12.8	8.9	2.9
	10/19	41.4	18.5	37.7	12.3	7.0	2.5
	9/21	46.7	23.1	40.4	12.9	9.3	3.0
	"The Voice"						
	9/28	48.1	23.8	38.9	14.1	9.3	3.4
	10/13	44.2	20.5	44.9	18.2	9.2	3.7
	10/19	48.7	24.0	41.8	14.4	10.0	3.5
	10/5	47.6	26.0	40.9	14.2	10.6	3.7
	10/20	41.2	19.8	44.7	18.3	8.9	4.1
	10/12	48.8	23.8	41.8	14.6	9.9	3.5
	"America's Got Talent"						
	9/15	42.9	18.6	28.5	8.8	5.3	1.6
	9/16	42.9	22.4	30.8	13.8	6.9	3.1
	9/2	39.2	16.7	35.5	13.9	5.9	2.2
	9/8	44.2	18.5	33.5	12.0	6.2	2.8
	9/1	44.8	21.5	37.4	15.8	8.0	3.4
	9/9	38.2	15.9	32.6	12.6	5.2	2.0
	"American Idol"						
	2/3	51.2	22.0	36.7	13.3	8.1	2.6
	2/10	50.4	23.0	38.2	13.1	8.8	3.0
	1/6	46.1	21.8	37.9	13.2	8.3	2.9
	1/13	43.9	20.1	34.5	13.2	6.9	2.7
	1/20	45.8	22.1	38.2	12.5	8.4	2.6
	1/27	48.7	21.0	37.1	13.9	7.8	2.9
	Performance reality average	44.3	21.2	37.9	13.6	8.1	2.9

continued

TABLE 1

Live and Time-Shifted TV Viewing—Description of Variables (continued)

Show Genre	Show and Date	% Program-Segment Views = DVR	% Ad-Segment Views = DVR	% DVR Ad-Segment Views = Day-Shifted	% DVR Ad-Segment Views = Shifted > Three Days	% All Ad-Segment Views = Day-Shifted	% All Ad-Segment Views = Shifted > Three Days
Live sports	Professional Golf Association						
	9/26	10.2	6.0	7.9	2.3	0.5	0.1
	9/20	10.6	6.8	17.7	4.7	1.2	0.3
	9/27	16.5	8.8	13.3	3.6	1.2	0.3
	10/17	4.6	4.0	11.9	5.0	0.5	0.2
	10/10	5.7	4.2	8.8	3.1	0.4	0.1
	9/06	7.2	4.4	6.8	1.2	0.3	0
	Major League Baseball						
	9/19	5.5	3.7	4.6	1.5	0.2	0
	9/12	3.2	2.5	4.1	1.3	0.1	0
	9/6	5.6	4.2	5.5	0.6	0.2	0
	9/27	6.9	5.1	1.5	0.6	0.1	0
	9/15	2.3	2.1	1.4	0.5	0.0	0
	9/26	4.3	3.4	2.7	1.1	0.1	0
	National Basketball Association						
	10/27	10.4	8.2	9.5	1.6	0.8	0
	11/24	13.1	9.6	17.3	2.8	1.7	0
	11/11	7.9	6.9	7.6	0.9	0.5	0
	11/4	8.0	6.9	10.4	2.0	0.7	0
	11/20	11.9	8.8	18.1	1.9	1.6	0
	10/28	9.5	7.5	14.2	2.1	1.1	0
	National Football League						
	11/08	9.7	8.8	6.8	2.4	0.6	0
	11/29	8.5	6.5	5.7	2.4	0.4	0
	10/18	8.4	6.4	7.3	3.0	0.5	0
	11/22	9.2	7.6	6.1	1.9	0.5	0
	11/15	9.3	7.3	5.3	1.9	0.4	0
	10/25	8.3	6.2	4.5	1.6	0.3	0
	Live sport average	8.2	6.1	8.3	2.1	0.6	0.1

Note: DVR = digital video recorder.

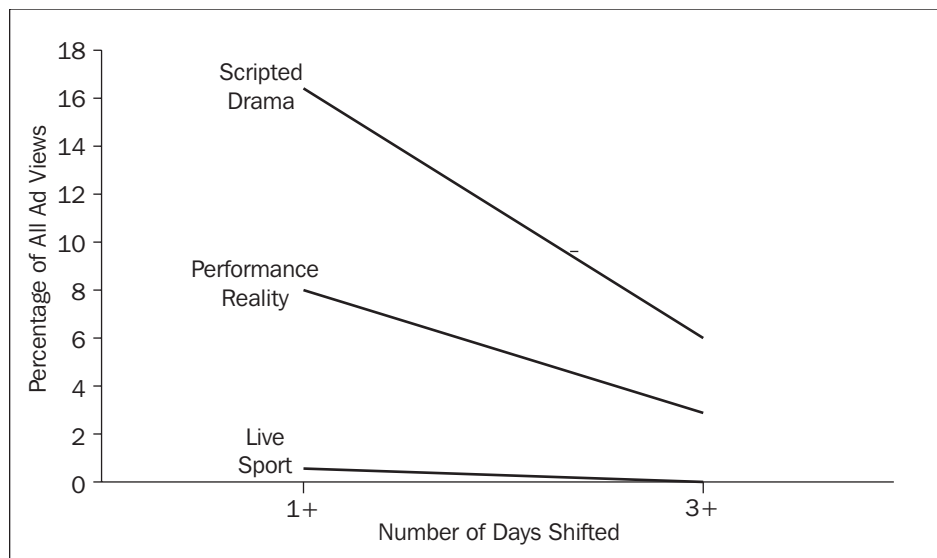


Figure 1 Day-Shifting of Normal-Speed Advertisement Views In Drama, Reality, and Sports

the calculations of the DVR share of all advertising-segment views included both the zapping and the zipping of commercials. The authors also calculated the percentage of all DVR advertising-segment views that were day-shifted and shifted by more than three days. Finally, they calculated the percentages of total advertising segment views that were day-shifted and shifted by more than three days.

RESULTS

The data by show, date, and summary genre are provided (See Table 1). Drama programs were popular for DVR viewing, with slightly more than half (53 percent) of all drama program-segment views in DVR playback (See Table 1). The performance reality shows had a somewhat lower rate of DVR viewing (44 percent) than the scripted dramas, $t(46) = 6.064$, $p < .01$. Only about 8 percent of the major-league sports-event watching was in DVR playback. The differences by genre may reflect viewing-urgency issues related to spoiling concerns, desires to participate in virtual or in-person program conversation, or anticipation of regret for not watching live in the first place.

Dramas also had a higher rate of DVR advertisement viewing than the other two genres. A full 28 percent of all advertisement-segment views from dramas were in DVR playback, whereas 21 percent of advertisement views from live-reality shows were on the DVR, $t(46) = 6.20$, $p < .01$. A much lower percentage (6 percent) of all advertisement views from sports were in normal-speed DVR playback. The day-shifting rate for advertisement views varied by program genre. The authors found that advertisement views from dramas more likely were day-shifted (16 percent) than advertisement views from the performance reality programs (8 percent), $t(46) = 10.416$, $p < .01$ (See Figure 1 and Table 1). Advertisements from the sports programs seldom were seen after the day of live airing (less than 1 percent of all views of these commercials).

When one looks at only the data for normal-speed DVR views of advertisements, the percentage of all DVR advertisement views that were day-shifted and shifted by more than three days was higher for dramas (See Table 1). This suggests that advertisements from dramas are

seen both more often and later on DVRs. The scripted drama programs also had a higher rate of all advertisement views that were late (*i.e.*, three or more days after live airing). Six percent of all advertisement views from dramas were shifted by more than three days (See Figure 1). A smaller share (about 3 percent) of all advertisement views from the performance reality programs were shifted by three or more days, $t(46) = 10.138$, $p < .01$. Very few DVR advertisement views from sports shows were observed at a three-day lag from live airing.

DISCUSSION

The authors explored the number and shelf life of recorded advertisement views in three major television-program genres. Scripted dramas were popular for DVR playback viewing, and more than 15 percent of all advertisement views from the dramas were day-shifted. More than 5 percent of all advertisement views in the drama programs were shifted by more than three days. In sum, dramas were viewed more often by DVR, often at longer delays from live, with consequences for the timing of normal-speed advertisement views (See Figure 2).

The delayed advertisement views in dramas may dampen advertisement effects for time-sensitive messages (*e.g.*, "One-day sale Saturday" run on a Thursday night). (In effect, even many Saturday DVR advertisement views are late, because people often use televisions at night.) Sports and reality programs with fewer day-shifted advertisement views may be beneficial when advertisement messages promote one-day sales or the opening weekend of new films. For more general or less time-sensitive messages, however, the delayed advertisement views carried by drama programs may retain more value.

The larger share of delayed advertisement views for dramas results from higher

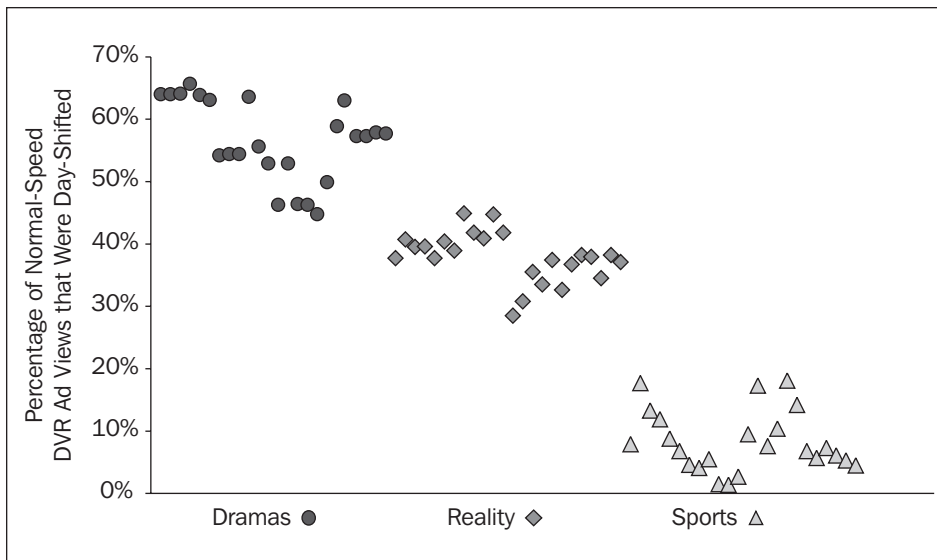


Figure 2 Day-Shifting of Normal-Speed Digital Video Recorder (DVR) Advertisement Views by Genre

rates of DVR program viewing in combination with the share of advertisements (Bronnenberg *et al.*, 2010; Pearson and Barwise, 2007) that go unskipped in DVR playback. Consider, for example, consumer views of the commercials in a drama with a 50–50 live–DVR viewing profile. If 90 percent of the live advertisements survive zapping and 30 percent of advertisements on the DVR side go unzipped, about one-quarter of all advertisement views will be normal-speed DVR.

Performance reality programs had approximately half as many day-shifted advertisement views as dramas and approximately half as many advertisement views that were shifted by three or more days. These results were affected by lower rates of DVR program viewing for performance reality shows relative to scripted dramas. When the demographics and audience mass of such reality shows are attractive, the programs could offer reduced advertisement shelf life versus dramas to advertisers airing time-sensitive advertising creative content.

As in previous data (*e.g.*, Nielsen, 2015b), live sports watching was heavily skewed

toward real time. Sports-viewing urgency was reflected in very few DVR advertisement views from live sports being day-shifted (See Table 1). In some current sports programs, the quantities of advertisement views lost to zapping (*e.g.*, 8 percent might zap in a 90 percent live-viewing segment) and zipping (*e.g.*, 70 percent might zip in a 10 percent DVR-viewing segment) may be similar. Given their higher rates of delayed program watching, however, many more advertisement views in drama and reality shows would suffer from the DVR versus the clicker.

IMPLICATIONS FOR PRACTICE

Variable advertisement shelf life by genre has implications for television networks and advertisers. For television networks, some delayed advertisement views may not be monetized (Stelter, 2013; Wilbur, 2008b). Most U.S. television advertisement buys now are based on C3 measures (which include payment for only the first three days of regular-speed DVR advertisement playback) (Crupi, 2016). This study's data thus suggest that about 6 percent of drama advertisement views and about 3

percent of performance reality advertisement views may not be compensated (See Table 1). In the high-stakes business of television ratings and revenue, the presence of more nonmonetized advertisements could affect program decisions, so longer DVR advertisement shelf life may be a financial issue for dramas.

Still, dramas are a staple of television viewing and programming, so networks that already have boosted live programming levels eventually might seek relief from developing advertisement-insertion technologies. Over time, networks might use advertisement-insertion software to swap in new monetized advertisements on some DVRs after the original Nielsen payment period—C3 or C7 (which include payment for only the first seven days of regular-speed DVR advertisement playback)—has expired. Advertisement insertion might allow for updated copy and targeting strategies, given that late viewers may be demographically different. Technical, advertisement-selling, and audience-measurement issues may complicate advertisement-insertion efforts, but the brief C3 payment window, in combination with more DVR use, creates incentives to monetize more delayed advertisement views.

The presence of some number of delayed DVR commercial exposures, with varying frequency by genre, could be of interest to advertisers. When advertisements are placed in a drama under a C3 payment metric, a fraction of normal-speed exposures may fall outside the (C3 or C7) payment period, which increases advertisement-spending efficiency. Advertisers therefore might consider placing time-insensitive messages in DVR-friendly dramas for a potential small advertisement-ratings bonus (Stelter, 2013). Advertisers also could benefit from use of show-specific ratings that include live and delayed watching information.

Although dramas differ from reality and live sports in the DVR share of program viewing and the number of normal-speed advertisement views after three days, some dramas have more DVR viewers than others (See Table 1).

For networks, the production cost of various show formats is another factor of interest. DVR viewing rates are high for dramas, and their production costs may be high as well. Stimulation of social-media activity related to dramas, however, may increase the live share of viewing (and early DVR viewing) as fans live-Tweet or avoid spoilers (Schirra, Sun, and Bentley, 2014). Social media, mostly used on smartphone second screens, thus could help television networks in this situation by increasing the live viewing and early DVR viewing shares for dramas. In this way, the second screen, often seen as a threat to advertisement engagement, could help networks increase monetized advertisement exposures.

From a longer perspective, the DVR has changed television-advertising exposure and network programming. It has not reduced television advertising's impact as radically as one might have expected a dozen years ago, however. Between advertisement views in live sports and news, reality shows, and some scripted programs, even devoted DVR users may see normal-speed commercials. As one commenter recently noted, "Among DVR users, some skip all ads, some don't bother to fast-forward at all, and a great many skip some advertisements but watch others depending on their mood, energy level, or affinity for the ad" (Holmes, 2016). The issues involved in vigilant manual advertisement avoidance—not "spacing out" about live versus DVR viewing mode, catching the start and end of advertising, not clipping show bits—presumably play a role in inconsistent advertisement avoidance. Network efforts to increase live

viewing also may affect advertisement-exposure rates.

LIMITATIONS AND FUTURE RESEARCH

Marketers and advertising researchers need more data on live and DVR television viewing. Many factors (show and genre, season, episode, audience demonstration, and data source and sample) could affect the precise live versus DVR numbers. The authors reported on fall 2015 comScore data for all viewers; there was a small amount of reporting overlap in shows with the spring 2016 Nielsen data for 18–49-year-old viewers given in previous research (Porter, 2016). The live and DVR program-viewing rates were 53.6 percent live and 46.4 percent DVR for six episodes of "The Voice" in the current study's data and 61.5 percent live versus 38.5 percent DVR for six episodes in the previous research article (Porter, 2016). The authors observed 40.2 percent live and 59.8 percent DVR viewing rates for six fall "Blind Spot" episodes, whereas the previous article (Porter, 2016) found 40.7 percent live and 59.3 percent DVR viewing for three spring episodes.

Another author (Buckman, 2016) cited Nielsen data also suggesting that dramas have high DVR viewing totals. Although idiosyncratic factors may move the numbers around somewhat, the greater DVR appeal of dramas versus reality and reality versus live sports provides implications for advertisers with time-sensitive copy. The authors emphasize genres to summarize, but advertisers should seek data on the particular shows in which they might buy advertising time.

In the current work, DVR playback was recorded for 15 days after the date of live airing. Viewers sometimes may play shows back at longer lags since live, perhaps when watching multiple stored episodes in one or a few viewing sessions.

Advertisement shelf-life effects might differ in such late viewing.

Future research also could examine why viewers allow a higher percentage of advertisements to play at normal speed in same-day versus later DVR playback. This effect was noted by the Nielsen Company (Story, 2007) and in more recent data as well (Mosley *et al.*, 2017). One author described the connection between same-day viewing and normal-speed advertisement exposures: "Nielsen has also found that commercials are watched more often during playback if the viewer is looking at the show the same day it ran. Commercial viewing drops significantly over time after the original showing" (Story, 2007).

This finding indicates that DVRs frequently may shift advertisement exposure times within the day of live airing (Wilbur, 2008a). The percentages of all DVR advertisement views that are day-shifted in the current research (See Table 1) imply that more than 60 percent of all DVR advertisement views from the reality shows and more than 40 percent of all DVR advertisement views from dramas, respectively, were same day. More than 90 percent of all DVR advertisement views from sports were same day.

There are several potential causes of lower advertisement avoidance in same-day playback. First, advertisements may seem more relevant to consumers on the day of their live airing. Commercials for the latest movie openings, live events, or retail sales may have greater informational value on the day that marketers chose to air them (Wilbur, 2015).

A second potential driver of lower advertisement avoidance in same-day DVR playback could involve higher levels of forgetting to zip commercials. Viewers more likely might "space out" and forget that they are not watching live when they play back a Thursday show on its Thursday night. Alternatively, viewers watching

nearly live may play some advertisements at normal speed as they seek complete program experiences without overrunning. Finally, systems designed to facilitate advertisement zipping may be less effective in same-day versus later playback.

These potential causes of lowered advertisement avoidance in same-day playback might produce different patterns of DVR advertisement views for individual advertisements, entire advertisement pods, or advertisements appearing late in shows. Whatever its causes, lower rates of advertisement avoidance in same-day versus later-day program playback may affect network advertising revenue. Networks may increase the share of DVR playback that is same day by stimulating viewing urgency through show-related social media. **JAR**

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REFERENCES

BAYSINGER, T., and D. HOLLOWAY. (2014, September 15). "Scheduling against the Shift: Growth of Delayed Viewing Has Made Planning a Fall Season More Difficult than Ever for the Big 5 broadcast Networks." Retrieved from the Broadcasting and Cable website: <https://www.broadcastingcable.com/news/scheduling-against-shift-134024>

BRASEL, S. A., and J. GIP. "Breaking through Fast-Forwarding: Brand Information and Visual Attention." *Journal of Marketing* 72, 6 (2008): 31–48.

BRONNENBERG, B. J., J.-P. DUBÉ, and C. F. MELA. "Do Digital Video Recorders Influence Sales?" *Journal of Marketing Research* 47, 6 (2010): 998–1010.

BUCKMAN, A. (2016, May 3). "Nielsen Research Sheds Light on Live versus Delayed Viewing." Retrieved from MediaPost website: <https://www.mediapost.com/publications/article/274898/nielsen-research-sheds-light-on-live-vs-delayed.html>

COHEN, E. L., and A. L. LANCASTER. "Individual Differences in In-Person and Social Media Television Coviewing: The Role of Emotional Contagion, Need to Belong, and Coviewing Orientation." *Cyberpsychology, Behavior, and Social Networking* 17, 8 (2014): 512–518.

CROMWELL, B. "This Fall, More New Milestones for the DVR: Five Shows at Least Double Their Adults 18–49 Premiere Rating." *Media Life Magazine*, October 6, 2016.

CRUPI, A. "Are Networks Beating Back the Devil in the DVR?: Push for Extended Commercial Ratings Gains Ground, but It Doesn't Address the Larger Problem: Viewers Simply Aren't Watching Ads in Playback." *Advertising Age*, September 30, 2014.

CRUPI, A. "By the Numbers: A Look Back at the 2015–2016 Broadcast Season." *Advertising Age*, May 26, 2016. Retrieved from <http://adage.com/article/media/numbers-a-back-2015-16-broadcast-season/304193/>

DATTA, H., G. KNOX, and B. J. BRONNENBERG. "Changing Their Tune: How Consumers' Adoption of Online Streaming Affects Music Consumption and Discovery." *Marketing Science* 37, 1 (2018): 5–21.

EMARKETER. (2006, November 28). "30 Percent of Homes to Have DVR Capability." Retrieved from <https://www.emarketer.com/Article/30-Percent-of-Homes-Have-DVR-Capability/1004316>

EMARKETER. (2016, March 8). "Digital Ad Spending to Surpass TV next year." Retrieved from <http://www.emarketer.com/Article/Digital-Ad-Spending-Surpass-TV-Next-Year/1013671>

FOSSEN, B., and D. A. SCHWEIDEL. "Television Advertising and Online Word-of-Mouth: An Empirical Investigation of Social TV Activity." *Marketing Science* 36, 1 (2017): 105–123.

FROMMER, D. (2011, July 7). "Chart of the Day: Why Everyone Wants a Piece of the TV Advertising pie." Retrieved from the Business Insider website: <https://www.businessinsider.com/chart-us-advertising-by-medium-2011-7>

GARFIELD, B. *The Chaos Scenario: Amid the Ruins of Mass Media, the Choice for Business Is Stark: Listen or Perish*. New York: Stielstra, 2009.

HOLMES, G. (2016, December 6). "You Watch More Ads than You Think." Retrieved from MediaPost website: <http://www.mediapost.com/publications/article/290465/you-watch-more-ads-than-you-think.html>

JOHNSON, B. K., and J. E. ROSENBAUM. "Spoiler Alert: Consequences of Narrative Spoilers for

- Dimensions of Enjoyment, Appreciation, and Transportation." *Communication Research* 42, 8 (2015): 1068–1088.
- LEAVITT, J. D., and N. J. S. CHRISTENFELD. "The Fluency of Spoilers: Why Giving Away Endings Improves Stories." *Scientific Study of Literature* 3, 1 (2013): 93–104.
- LITTLETON, C. "Networks Compete against Themselves as Time-Shifted Viewing Spikes." *Variety*, July 30, 2014. Retrieved from <http://variety.com/2014/tv/awards/time-shifted-viewing-shifts-competitive-landscape-1201271533/>
- MOSLEY, B., D. A. SCHWEIDEL, and R. J. KENT. "Reacting to Actors, Characters, and Programs: Social TV Content and Television Viewing Behavior." (working paper), Emory University, Atlanta, GA, 2017.
- NAM, S., P. MANCHANDA, and P. K. CHINTAGUNTA. "The Effect of Signal Quality and Contiguous Word of Mouth on Customer Acquisition for a Video-on-Demand Service." *Marketing Science* 29, 4 (2010): 690–700.
- NIELSEN. (2014, November 4). "Building Time-Shifted Audiences: Does Social TV Play a Role?" Retrieved from <http://www.nielsen.com/us/en/insights/news/2014/building-time-shifted-audiences-does-social-tv-play-a-role.html>
- NIELSEN. (2015a, April 6). "Live TV + Social Media = Engaged Viewers." Retrieved from <http://www.nielsen.com/us/en/insights/news/2015/live-tv-social-media-engaged-viewers.html>
- NIELSEN. (2015b, December 8). "Tops of 2015: TV and Social Media." Retrieved from <http://www.nielsen.com/us/en/insights/news/2015/tops-of-2015-tv-and-social-media.html>
- PEARSON, S., and P. BARWISE. "PVRs and Advertising Exposure: A Video Ethnographic Study." *International Journal of Internet Marketing and Advertising* 4, 1 (2007): 93–113.
- PETTY, R. E., J. T. CACIOPPO, and R. GOLDMAN. "Personal Involvement as a Determinant of Argument-Based Persuasion." *Journal of Personality and Social Psychology* 41, 5 (1981): 847–855.
- PORTER, R. (2016, May 2). "The Hidden DVR Bump: Live Viewing Brings Less than Half of Top Shows' Ratings." Retrieved from TV by the Numbers website: <http://tvbythenumbers.zap2it.com/dvr-ratings/the-hidden-dvr-bump-live-viewing-brings-less-than-half-of-top-shows-ratings/>
- SCHIRRA, S., H. SUN, and F. BENTLEY. "Together Alone: Motivations for Live-Tweeting a Television Series." Paper presented at the 32nd Annual ACM Conference on Human Factors in Computing Systems, Toronto, Canada, April 26–May 1, 2014.
- SCHWEIDEL, D. A., and R. J. KENT. "Predictors of the Gap between Program and Commercial Audiences: An Investigation Using Live Tuning Data." *Journal of Marketing* 74, 3 (2010): 18–33.
- SCHWEIDEL, D. A., and W. W. MOE. "Binge Watching and Advertising." *Journal of Marketing* 80, 5 (2016): 1–19.
- SIDDARTH, S., and A. CHATTOPADHYAY. "To Zap or Not to Zap: A Study of the Determinants of Channel Switching during Commercials." *Marketing Science* 17, 2 (1998): 124–138.
- STEINBERG, B. (2007, May 31). "DVR ad Skipping Happens, But Not Always." Retrieved from the Advertising Age website: <http://adage.com/article/media/dvr-ad-skipping/117023/>
- STELTER, B. "As DVRs Shift TV Habits, Ratings Calculations Follow." *The New York Times*, October 6, 2013. Retrieved from <http://www.nytimes.com/2013/10/07/business/media/dvrs-shift-tv-habits-and-ratings.html>
- STORY, L. "Viewers Fast-Forwarding Past Ads? Not Always." *The New York Times*, February 16, 2007. Retrieved from <http://www.nytimes.com/2007/02/16/business/16commercials.html>
- THOMAS, E. A. (2012). "DVR Pilot Study: Measuring the Use of Digital Video Recorders in Modern Television Viewing." Retrieved from Murray State University Explorations website: <https://sites.google.com/a/murraystate.edu/graduate-journal/past-issues/dvr-pilot-study>
- WILBUR, K. C. "How the Digital Video Recorder (DVR) Changes Traditional Television Advertising." *Journal of Advertising* 37, 1 (2008a): 143–149.
- WILBUR, K. C. "A Two-Sided Empirical Model of Television Advertising and Viewing Markets." *Marketing Science* 27, 3 (2008b): 356–378.

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